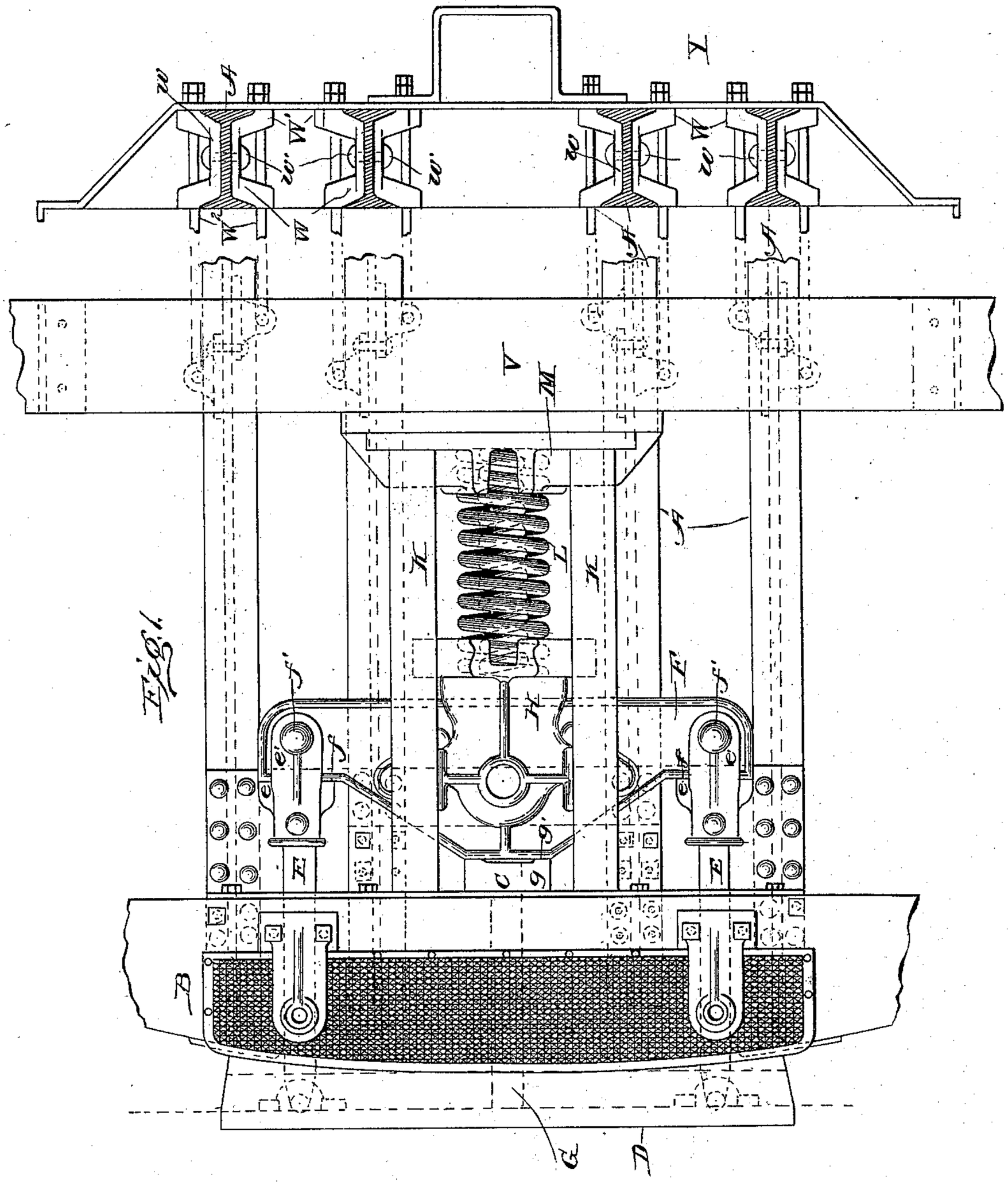
(No Model.) 3 Sheets—Sheet 1.

H. H. SESSIONS.

BUFFER EQUIPMENT FOR RAILWAY CARS.

No. 605,521. Patented June 14, 1898.



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3 Sheets—Sheet 2.

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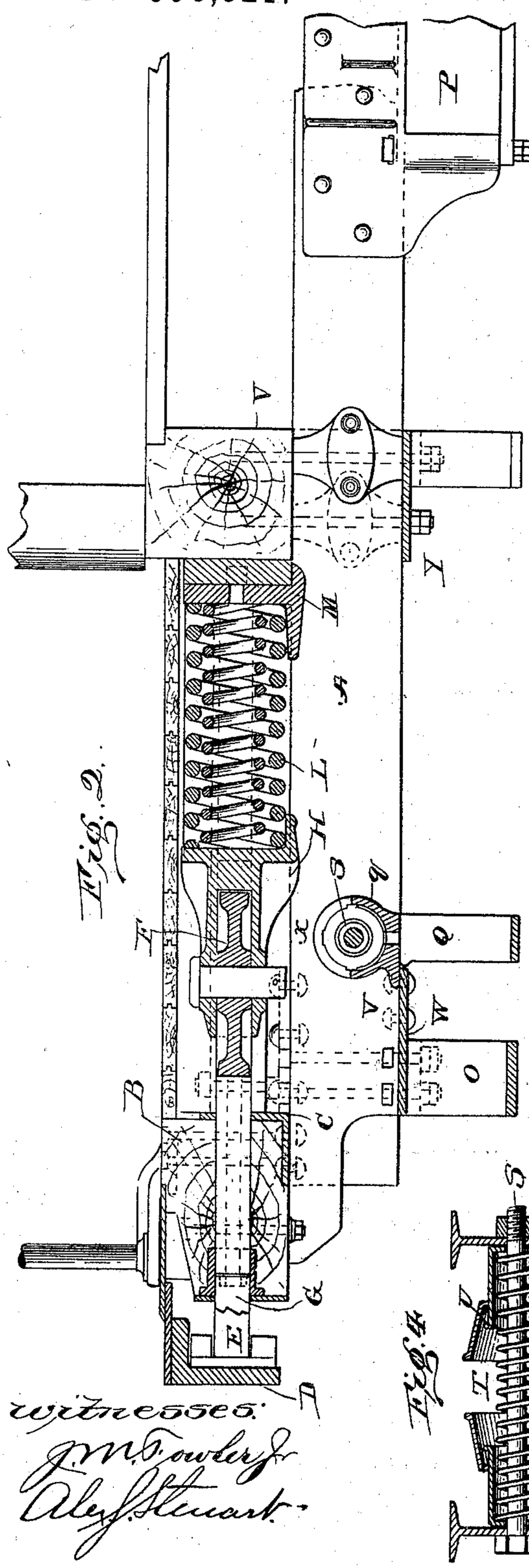

Fig. 2.

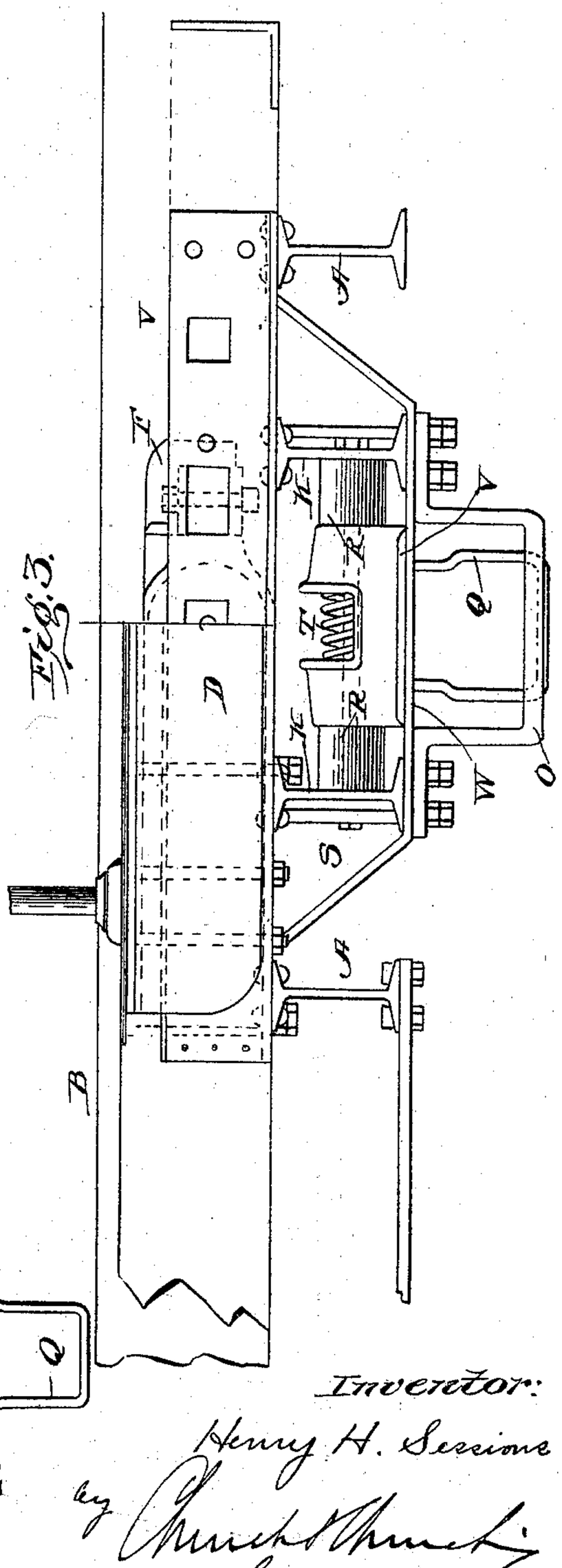

Fig. 3.

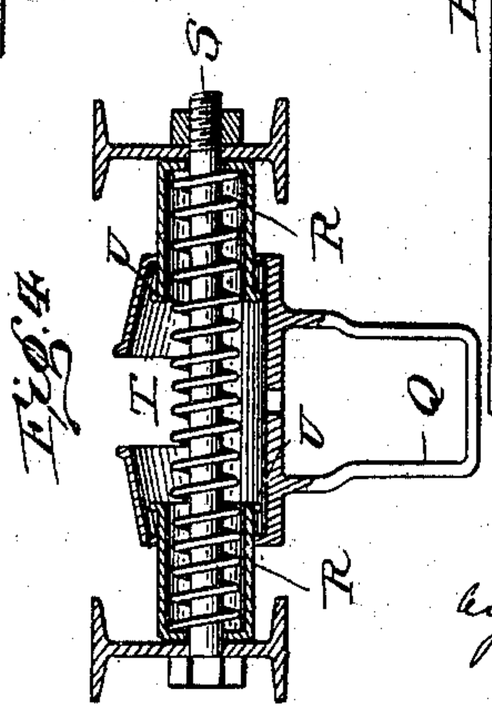

Fig. 4.

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(No Model.) 3 Sheets—Sheet 3.

H. H. SESSIONS.

BUFFER EQUIPMENT FOR RAILWAY CARS.

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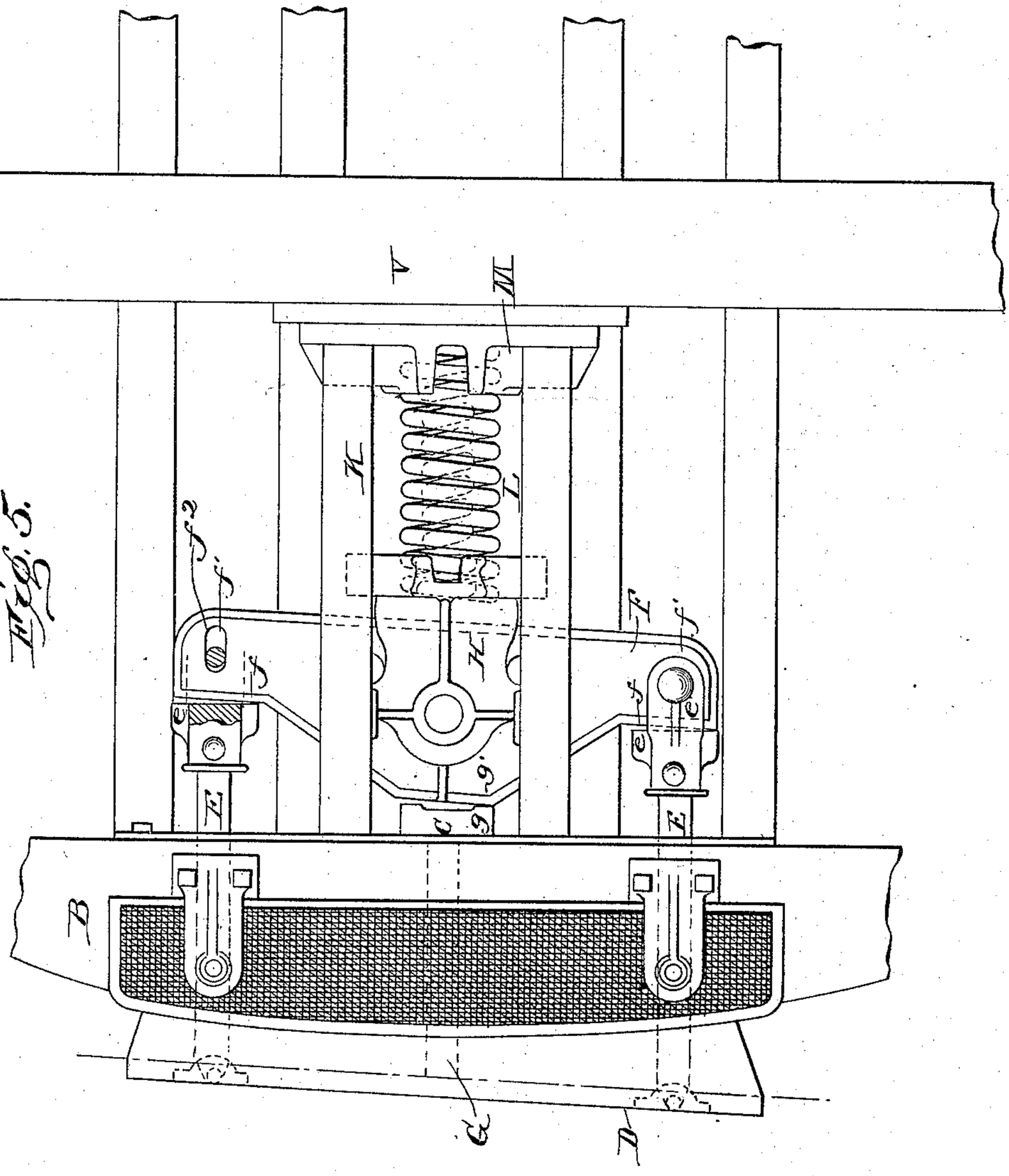

Fig. 5.

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UNITED STATES PATENT OFFICE.

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BUFFER EQUIPMENT FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 605,521, dated June 14, 1898.

Application filed January 21, 1898. Serial No. 667,428. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. SESSIONS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Buffer Equipments for Railway-Cars; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in what is known as the "buffer equipment" of railway-cars, and is particularly, though not exclusively, applicable to passenger-cars of any of the ordinary types. In view of the fact that the construction of the framing of the car-body and the draft mechanism for coupling the bodies together is well known I have not deemed it necessary to illustrate in the present application but one end of the floor-framing and sills of a passenger-car, inasmuch as it will be perfectly apparent to those skilled in the art that the invention may be applied to any ordinary construction of car-body and used in connection with any ordinary draft mechanism or coupler.

Referring to the accompanying drawings, Figure 1 is a top plan view showing a buffing mechanism constructed in accordance with my present invention applied to an ordinary platform-frame. Fig. 2 is a vertical section taken on the center line longitudinally of the buffing mechanism. Fig. 3 is a front elevation, partly broken away. Fig. 4 is a vertical section taken at right angles to Fig. 2 on the line *x x*. Fig. 5 is a view corresponding to Fig. 1, with one stem broken away to show the slot in the equalizing-bar and the parts inclined as in turning a curve.

Like letters of reference in the several figures indicate the same parts.

The letter A indicates a series of I-beams, which extend beneath the level of the sills of the car-body and beyond the main portion of the body at each end to support the platform and buffing equipment. At the forward end these I-beams A support the buffer-beam B, the connection between the beams being preferably made by bolts and a transverse L-iron C, forming an exceedingly rigid connection between the parts. The buffer-plate D is supported in front of the buffer-beam in the ordinary manner by means of supporting push-rods or buffer-stems E, located one at each side, passing back through guides in the buffer-beam and connected at their rear ends, in a manner to be presently described, with each end of an equalizer or equalizing-bar F. The center portion of the buffer-plate is held forward by a center stem G, as usual, which center stem also rests against the equalizing-bar in a manner to be presently described.

The equalizing-bar F is centrally journaled and supported in the head H, the head H being for this purpose provided with a transverse horizontal slot for the reception of the equalizing-bar, and said head is in turn supported upon or guided by side beams K, which will prevent its lateral movement but permit it to move backwardly and forwardly in accordance with the required movements of the buffer-plate. The head H is held in its forward position by advancing-springs L, interposed between the rear face of the head and a socket-plate M, secured to the sills of the car-body. Thus the buffer-plate is maintained in its forward position with a yielding pressure.

In order now that the tendency of the buffer-plate when pressure is applied thereto shall always be to return to or assume a position at substantially right angles to the longitudinal axis of the car-body, I form the connections between the push-rods or side stems and the equalizer as follows: The forward side or edge of the equalizer at each end is made substantially flat or straight, as at *f*, and the rear ends of the stems are provided with corresponding flat or straight coöperating bearing-surfaces *e*, and as a convenient means for connecting the stems and equalizer the ends of the stems are further provided with arms *e'*, which embrace the ends of the equalizer, and a vertical pin or bolt *f'*, passing through the said arms *e'* and equalizer, holds the parts in their proper relative position, it being understood, of course, that a sufficient play or looseness is left around the bolts, as at f^2, to permit of the full range of movement of the equalizing-bar on its pivotal center and so that the buffer-plate may

assume under certain conditions a relatively angular position. By reason of the coöperating flat or straight bearing-surfaces *e* and *f* it will be noted that when the buffer-plate is pressed back so as to compress the springs L and the buffer-plate is caused to incline in either direction with relation to the axis of the car-body the equalizer will be correspondingly turned, but in doing so the point of contact between the stems and equalizer is changed from an even bearing throughout the extent of the straight faces to a bearing at one corner or end of said straight faces. At the side which is advanced this bearing will be at the end of the equalizing-bar, and at the opposite side it will be at the inner ends of the straight faces, the result being that a differential pressure is exerted on the equalizing-bar, tending to cause it to assume its normal right-angle position with relation to the axis of the car-body. The result of this arrangement is that the buffer-plate is caused to instantly resume its proper angular position when the pressure which has thrown it out of such position is relieved, and after turning a curve the buffer-plates will always return to proper right-angle position, thereby reducing to the minimum the danger of derailment by reason of any tendency of the buffer-plates to slide transversely with relation to each other.

The center stem G is also preferably provided with a straight bearing-face *g*, which coöperates with a straight face *g'* at the center of the equalizing-bar in order to maintain a proper pressure at the center of the buffer-plate, inasmuch as it is apparent that the distance between the ends of the equalizing-bar and buffer-plate is slightly increased by any swinging movement, and this distance should be correspondingly increased at the center portion in order to maintain an even pressure at the center and ends. The center stem when thus constructed will also exert a tendency to return the equalizer to its correct normal position at right angles to the axis of the car-body.

In order to return the couplers connecting the cars to their proper central position after having been swung laterally, as in turning a curve, and so that the pressure on the buffing mechanism may be uniformly distributed and in order to hold said couplers central, I provide a centralizing mechanism as follows: The usual carry-irons O, together with the usual spring-pocket P, are provided beneath the I-beams A, and preferably immediately in rear of the forward carry-iron or yoke O, I mount a laterally-movable yoke Q, through which the draw-bar passes and with which it is moved in unison. This yoke Q is formed upon or attached to a sleeve *q*, (see Fig. 4,) which sleeve in turn is mounted and adapted to slide upon thimbles R, and the thimbles R are mounted between the I-beams A and held in place by a through-bolt S, so as to be capable, each of them, of an inward or a telescoping movement with relation to the sleeve upon said bolt S. The thimbles are maintained in their outward position by a central spring or springs T, preferably surrounding the through-bolt S, and the ends of the sleeve *q* and inner ends of the thimbles are provided with coöperating flanges which prevent the outward separation of the three parts. In the preferred construction these flanges are mutilated or have spaces U, Fig. 2, formed therein, whereby in assembling the parts the portions of the flange on the thimble may be brought opposite the spaces on the sleeve and passed into the sleeve through said spaces, when a slight turn in either direction will prevent the separation of the parts.

The sleeve itself may be and preferably is centrally supported by means of a bearing lug or projection V, which slides upon the upper surface of the carry-iron or yoke-plate W, as shown clearly in Fig. 2.

In operation any lateral movement of the draw-bar or coupler will move the sleeve *g* laterally, the result being that the thimble at the end of the sleeve away from which the movement takes place will be drawn inwardly, compressing the spring T and tending to return the draw-bar to its normal position. The thimble at the opposite end of the sleeve will not be disturbed in its position, but the sleeve will slide upon or telescope with the same, as will be readily understood.

The sill at the end of the car-body frame is indicated in the accompanying drawings by the letter V, and the I-beams A are supported and connected to the sill V by means of a connection which I have found in no wise weakens the flanges of the I-beams at this the point of greatest strain. The connection is formed by means of what I term "I-beam brackets," which are secured to the I-beam by bolts or rivets passing through the web of the beam, and have extensions at the side through which the supporting-bolts may pass beyond the flanges of the beam. These brackets are illustrated in Fig. 2 and in the extension at the right of Fig. 1, the latter showing the I-beams in section. A bracket (lettered W) is secured to each side of each I-beam and provided with central webs *w*, through which the bolts *w'* pass to unite the brackets to the webs of the beams and, as shown in Fig. 2, the brackets on opposite sides of each beam are preferably arranged out of line with each other, or so that the center bolt only will pass through both brackets and the end bolts through one bracket, thereby securing the advantage of the strength of an additional bolt. The brackets W have eyes W' extending outwardly beyond the flanges of the I-beams, and through these eyes W' the vertical supporting tie-bolts W^2 pass and extend thence up into or through the sills or sill V of the car-body frame. This construction, as before explained, does not in any wise weaken the I-beam flanges, but on the contrary tends to strengthen the I-beam by supporting the

same at the sill. If desired, in addition a hanger Y may pass down under the I-beams from side to side, as shown in Fig. 1.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a buffer equipment for railway-cars, the combination with the buffer-plate, the stems therefor and the centrally-pivoted spring-supported equalizer, of substantially straight transversely-arranged bearings interposed between the stems and equalizer whereby a differential leverage is exerted by the equalizer when moved into an inclined position; substantially as described.

2. In a buffer equipment for railway-cars, the combination with the buffer-plate having the rearwardly-extending stems provided with substantially straight horizontal bearing-surfaces at their rear ends, of a centrally-pivoted spring-supported equalizer having substantially straight horizontal bearing-surfaces at its ends on the forward edges for coöperation with the corresponding surfaces on the stems; substantially as described.

3. In a buffer equipment for railway-cars, the combination with the buffer-plate and the rearwardly-extending stems having substantially straight horizontal bearing-surfaces and arms extending rearwardly above and below said bearing-surfaces, of the centrally-pivoted spring-supported equalizer having its ends located between the rearwardly-extending arms on the stems and provided with substantially straight horizontal bearings coöperating with the corresponding bearings on the stems and pins loosely uniting the stems and equalizers; substantially as described.

4. In a buffer equipment for railway-cars the combination with the centrally-pivoted spring-supported equalizer having substantially straight bearing-surfaces on its front edge at the center and each end respectively, of the buffer-plate and the side and central buffer-stems each having a substantially straight horizontal bearing-surface for coöperating with the corresponding bearing-surface on the front edge of the equalizer; subtantially as described.

5. In a buffer equipment for railway-cars the combination with the supporting-beams of a depending yoke for the draw-bar adapted to be moved laterally, and a central spring adapted to be put under compression by the movement of the yoke in either direction; substantially as described.

6. In a buffer equipment for railway-cars the combination with the supporting-beams and a laterally-movable yoke depending therefrom, of a central spring and a telescoping connection between said yoke and each end of the spring whereby lateral movement in either direction will put the spring under compression; substantially as described.

7. In a device such as described adapted to be applied to the buffer equipment of railway-cars the combination with the sleeve having the depending yoke for the draw-bar, the thimbles telescoping in said sleeve and the central spring for holding said sleeves extended; substantially as described.

8. The combination with the sleeve having the depending yoke and internal end flanges, of the thimbles having the external end flanges and adapted to telescope with the sleeve, of the central spring for holding said thimbles extended and the bolt for maintaining the parts in position; substantially as described.

9. The combination with the sills of a car-body frame and I-beams passing longitudinally beneath said sills, of I-beam brackets united to the webs of the I-beam by through bolts or rivets and having eyes extending beyond the flanges of the I-beams and supporting or tie bolts passing through said eyes outside of said flanges and into the sills of the car-body framing; substantially as described.

10. The combination with the car-body frame and I-beams of I-beam brackets secured on opposite sides of said I-beam and preferably arranged out of line with each other, of a bolt or rivet passing through the web of the I-beam and through both of said brackets at the point where they overlap and bolts or rivets uniting each of said brackets and said web of the I-beam, said I-beam brackets having lateral projections extending beyond the flanges of the I-beam and tie or supporting bolts passing through said extensions and uniting the I-beams to the car-body frame; substantially as described.

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