

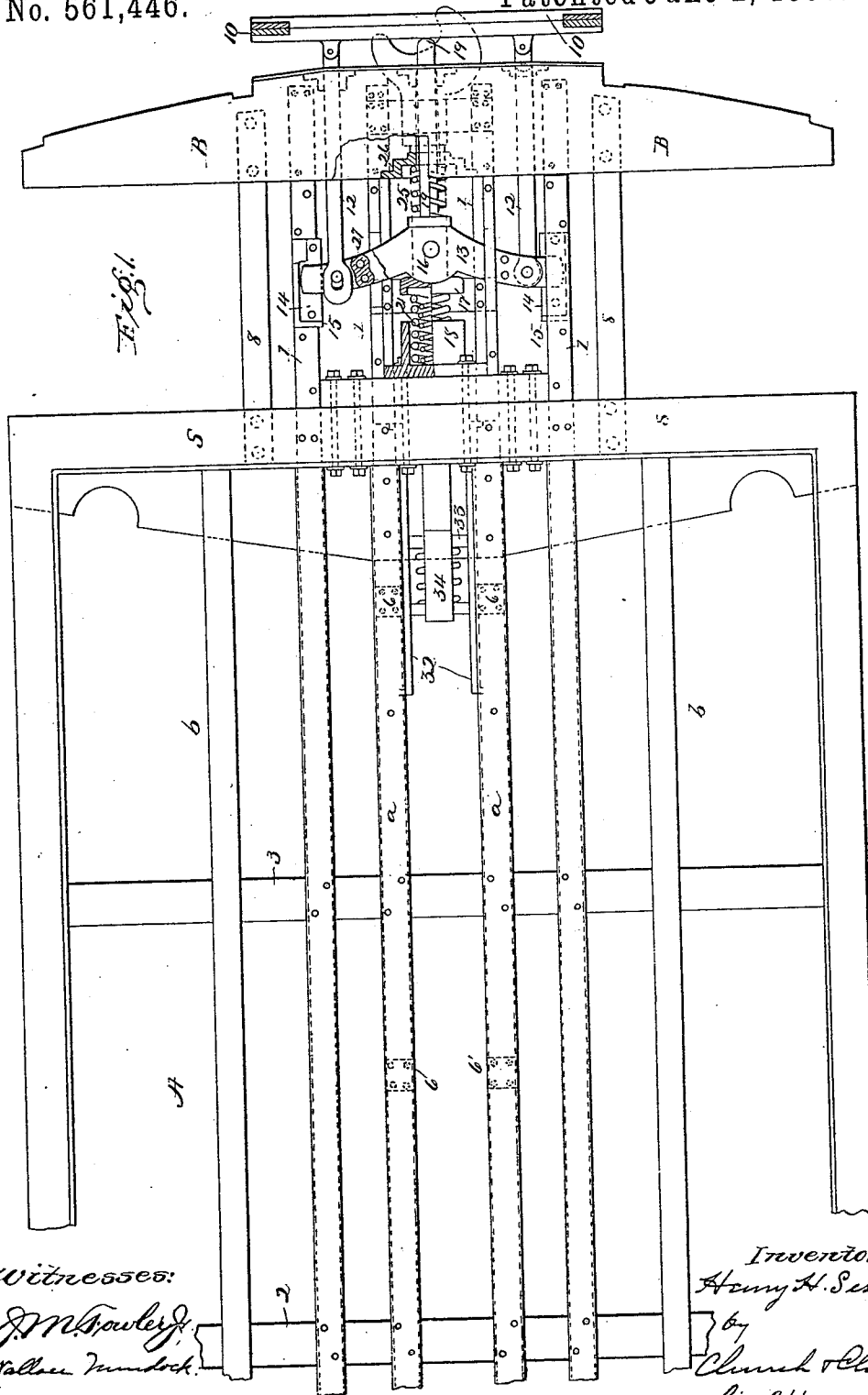
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H. H. SESSIONS.

PLATFORM EQUIPMENT AND BUFFER AND DRAFT RIGGING FOR
RAILWAY CARS.

No. 561,446.

Patented June 2, 1896.



Witnesses:

J. M. Fowler Jr.
Wallace Mumdock.

Inventor:

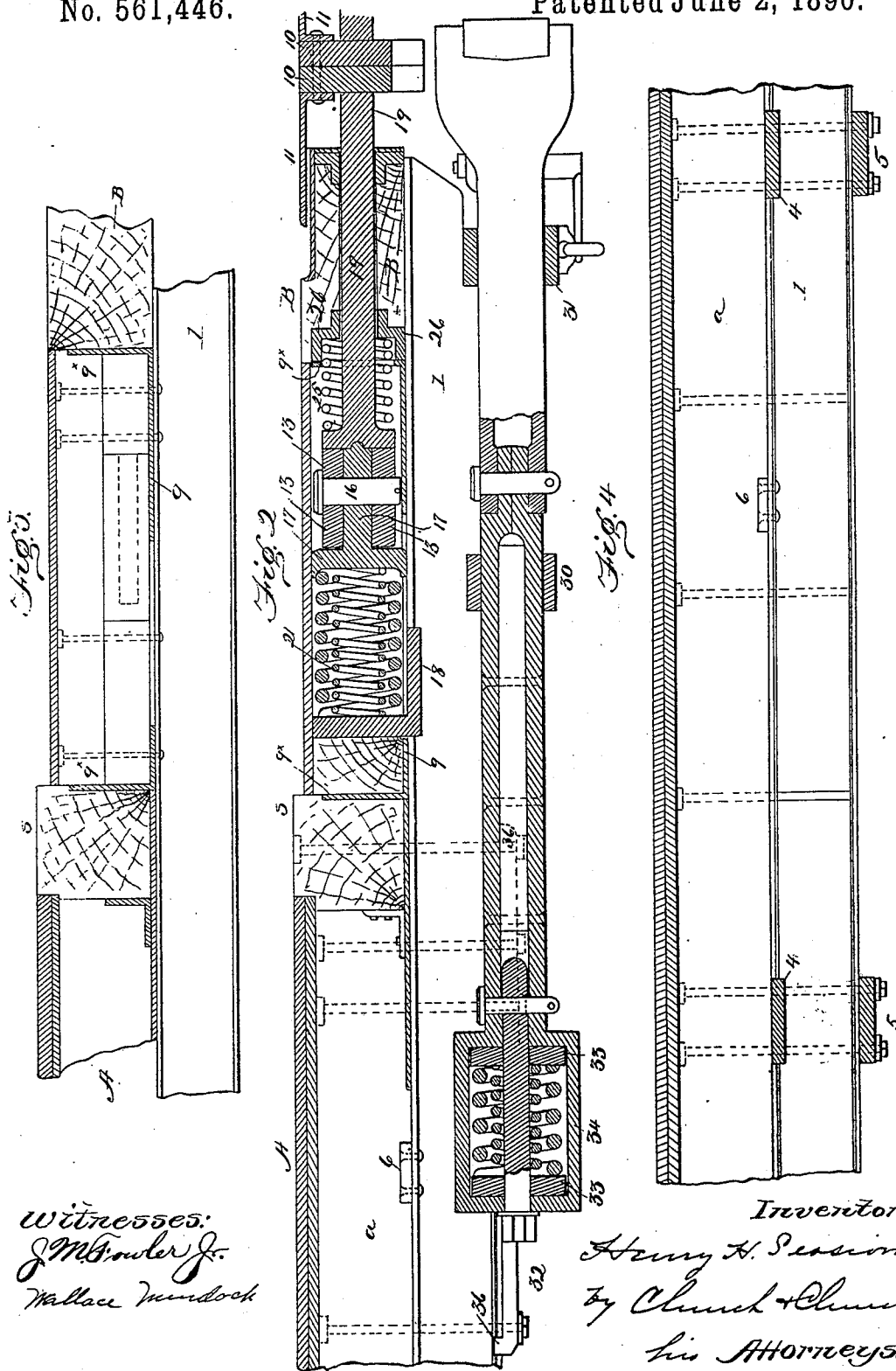
Henry H. Sessions

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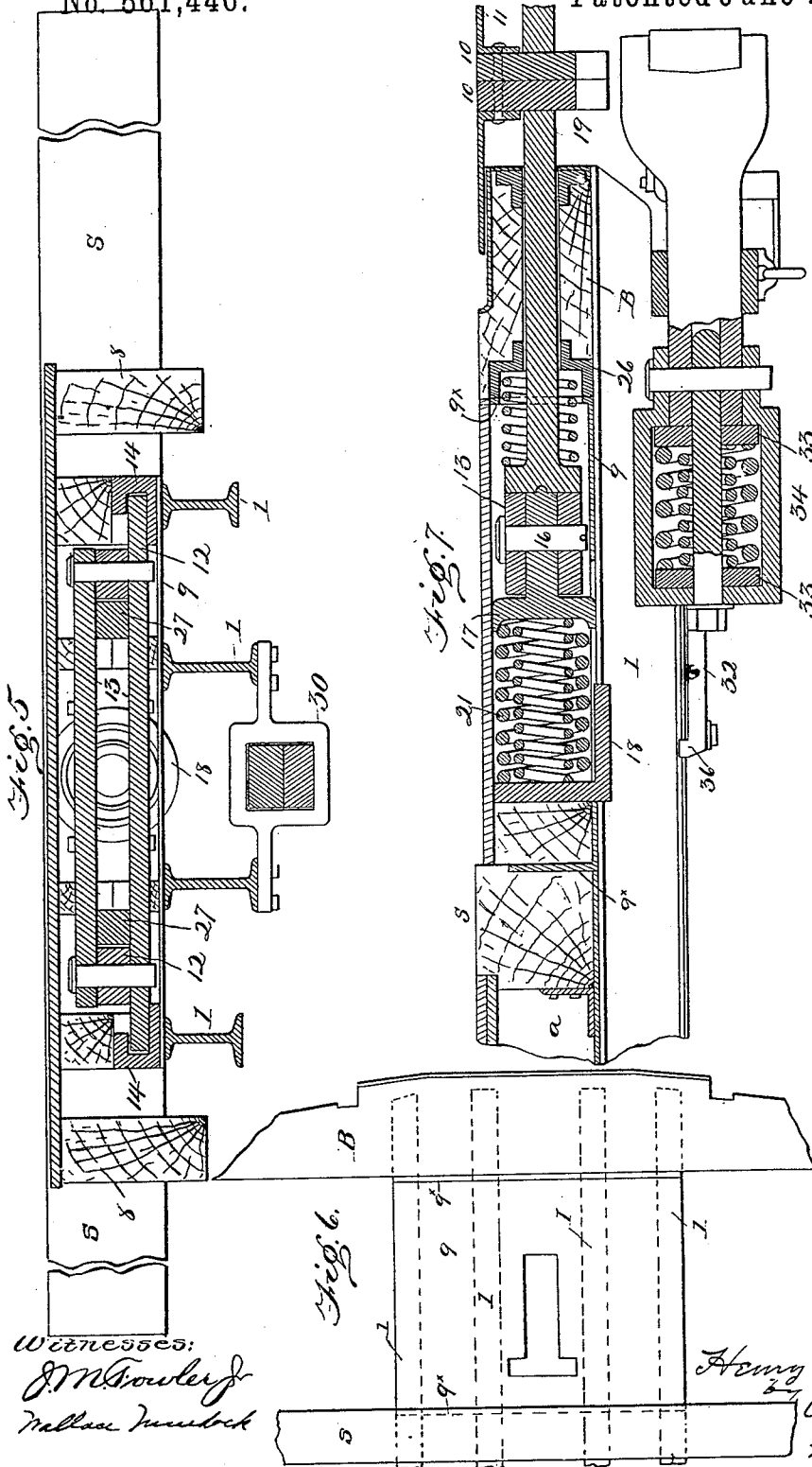
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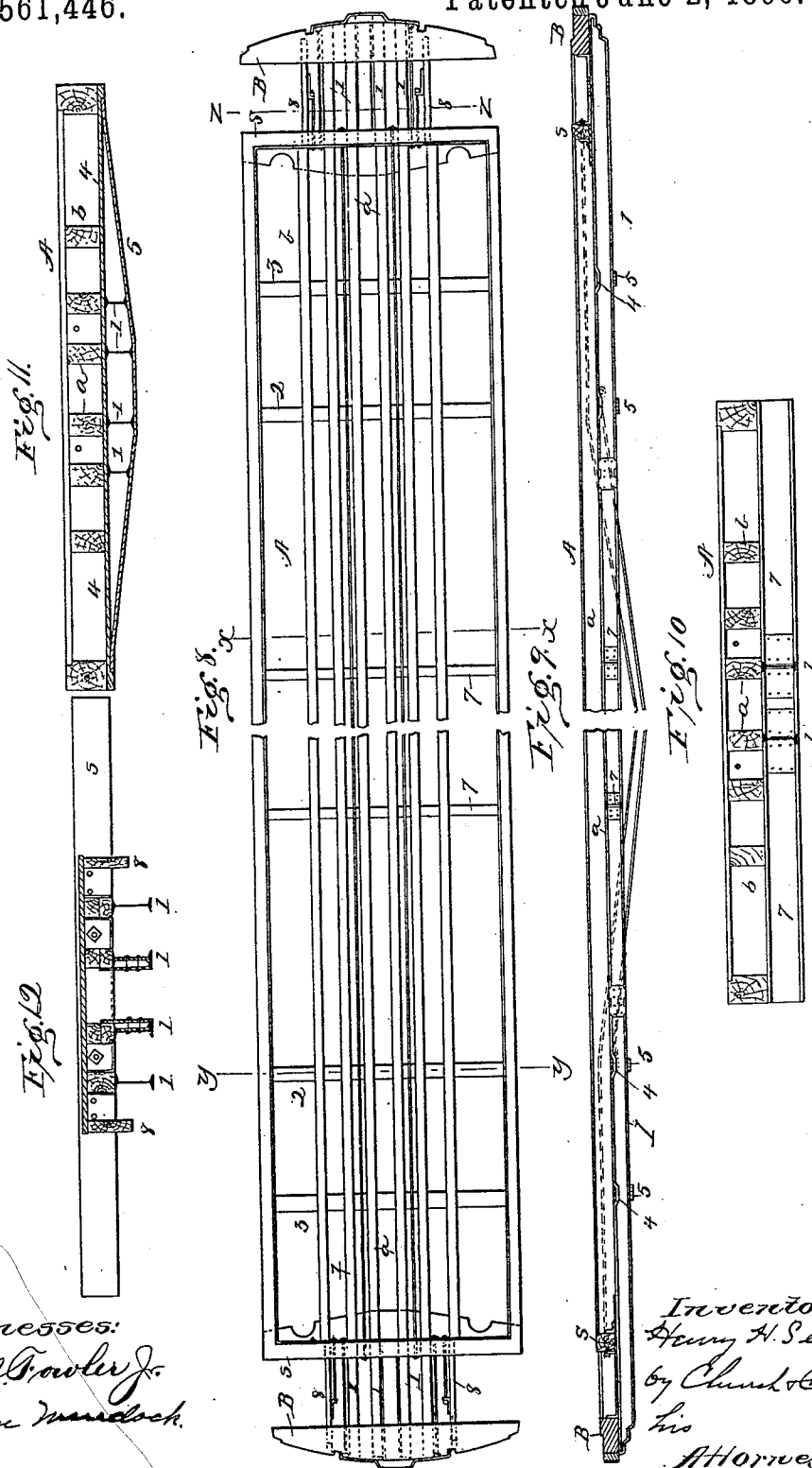
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UNITED STATES PATENT OFFICE.

HENRY H. SESSIONS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE STANDARD COUPLER COMPANY, OF NEW YORK, N. Y.

PLATFORM EQUIPMENT AND BUFFER AND DRAFT RIGGING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 561,446, dated June 2, 1896.

Application filed August 26, 1895. Serial No. 560,541. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. SESSIONS, of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Platform Equipment and Buffer and Draft Rigging 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 figures and letters of reference marked thereon.

My present invention relates to improvements in the construction and equipment of railway-cars, more especially the platforms of passenger-cars, and the draft and buffing equipment thereof; and it has for its objects, among others, to provide a strong and enduring structure to support the platform and its equipment; to prevent sagging of the platform; to so construct and arrange the draft and buffing equipment that the shocks incident to collision and hauling shall be borne in the plane of the platform and in a manner to protect the body of the car; to maintain the platform of the car in its integrity under all conditions of use; to insure the proper accommodation of the buffing plates or surfaces and cause them to automatically resume their most effective positions at substantially right angles to the length of the car-body after passing curves, and generally to improve the structure of the car, so as to prolong its life, increase its efficiency, and protect life in case of accident, all as hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view, partly in section, showing the platform equipment at one end of the car, the supporting brace-plate being omitted to disclose the underlying structure. Fig. 2 is a longitudinal vertical section, the coupling-head being in elevation. Fig. 3 is a detail view showing the supporting brace-plate in position. Fig. 4 is a longitudinal section of a portion of the through-beams serving as supports for the car-body, showing one means for securing the timbers to said beams. Fig. 5 is a transverse sectional view through the

equalizing-bar of the buffing-rigging. Fig. 6 is a top plan view of platform, showing the brace-plate and omitting the buffing-rigging. Fig. 7 is a longitudinal sectional view of the buffing-rigging as used in connection with a short coupler. Fig. 8 is a top plan view, and Fig. 9 a longitudinal sectional view, of the support for the car-body and platform, the central section being broken away. Figs. 10, 11, and 12 are transverse sectional views on lines *x x*, *y y*, and *z z*, respectively, of Fig. 8.

Similar letters and figures of reference in the several views indicate the same parts.

The car-body A may be of any desired or approved construction, and as the superstructure forms no part of the present invention it is omitted, only so much of the base being included as serves to indicate the connection between it and the improvements hereinafter described.

At a suitable distance beyond each end of the car-body is located a buffer-beam B, which latter is supported and rigidly connected to the car-body as follows: Beneath each end of the car-body are secured a series, preferably four, metallic beams 1, preferably I shape in cross-section, although other approved forms may be employed. The two inner beams 1 occupy a position longitudinally of and beneath the two central sills *a a* of the car-body, while the outer beams 1, preferably slightly less in depth than the inner beams, are located in planes intermediate the central sills *a* and the timbers *b*. All four beams extend beneath the car to a point beyond the second cross-piece 2, which latter, together with the first cross-piece 3, is composed of two members, the upper one 4 sustaining the longitudinal sills of the car-body and resting upon the tops of the beams 1, and the lower member 5 passing beneath the beams and having its ends curved or inclined upward to their junction with the upper member, as indicated in Fig. 11, where they are bolted together and to the car-body. The upper surfaces or top flanges of the beam 1 may be recessed or depressed for the reception of the upper member 4 of the cross-pieces, as indicated in Figs. 4 and 9, so as to permit the central sills to come flush with the top sur-

face of the beams without mortising said sills, at the same time securely fastening the cross-pieces in position upon the beams.

To insure the car-body against movement longitudinally upon the beams, projections 6, Fig. 4, may be formed upon or secured to the top surface of the beams in position to engage mortises in the sills, this being in addition to the bolts or other fastening devices employed for securing the body in position upon the beams.

The preferred construction contemplates the use of continuous beams 1, either made in one continuous piece or in sections properly secured together and to the cross-pieces 7, supporting the car-body, as shown in Figs. 9 and 10, thus forming a rigid structure for the support of the car-body and, as will presently appear, furnishing a solid metallic frame independent of the car-body proper to receive the buffing and hauling strains. It is not essential, however, that the outer beams 1 should extend much, if any, beyond the second cross-piece 2, as the two inner beams will suffice under ordinary circumstances to protect the car.

The buffer-beams B are secured to the outer ends of the beams 1 at a suitable distance from the end sill s to furnish space for the platform and the buffing-rigging, and suitable wooden braces 8, uniting the buffer-beam and end sill, serve to brace the former and afford a base for the attachment of the platform, as indicated in Fig. 5.

To still further reinforce the connection between the car-body, buffer-beam, and the longitudinal beams 1, and to render the platform more rigid, so that it will the better sustain shocks and be prevented from sagging, a brace-plate 9, provided with end flanges 9^x, is securely fastened, as by bolts or rivets, to the beams 1 between the end sill and buffer-beam, the flange at one end engaging and being secured to the end sill and the opposite flange to the buffer-beam. (See Figs. 2, 3, 5, and 7.)

The equipment heretofore described occupies, in effect, a position intermediate the car-body and the running-gear, ample provision being made to securely hold the car-body in position and prevent its shifting. Moreover, the metallic beams running longitudinally of and beneath the car-body and having the buffer-beams attached to the ends afford a basis for the attachment of the buffer and draft rigging, thus relieving the car-body from the direct influence of draft strains, the latter being borne almost wholly by the beams 1 in the direction of their greatest strength—that is, longitudinally of said beams.

The next novel feature of improvement relates to the buffing-rigging and its equalizing mechanism.

Each end of the car is to be provided with a buffing-plate 10, constructed either as a separate element, as part of the foot-plate, or as

part of the frame-plate commonly used in the construction of vestibule-cars. As illustrated in the present instance, the buffer-plate carries the foot-plate 11 and forms part of the frame-plate of the vestibule.

The buffer-plate is arranged at right angles to the body of the car, and when two cars are coupled the buffer-plates are held firmly in contact under yielding pressure, and the arrangement is such as to permit the buffer-plates to yield laterally at the ends to accommodate themselves to the angular position assumed by the cars in turning curves, &c. It is of considerable importance, however, that the buffer-plates should be brought back into position parallel with the ends of the cars immediately after passing a curve, and that they should at all times occupy a position as nearly parallel with the end of the car as circumstances will permit, for if they should occupy an angular position at the time of a collision they would favor the slipping of the proximate ends of adjacent cars in opposite directions instead of receiving the shock squarely in the line of greatest resistance.

One purpose of the present invention is to provide a buffing-rigging which, while capable of yielding when the cars are deflected, as in passing a curve, will automatically and promptly return the buffer-plates to their normal position parallel with the end of the car. To this end the buffer-plate 10 is pivotally attached at or near each end to one of a pair of rods 12, passing through the buffer-beam B, each of said rods being pivotally connected at its inner end to one arm of an equalizing-bar 13. This equalizing-bar is supported at each end in a guideway 14, secured upon one of the outer beams 1 and provided with abutments 15 to limit the movement of said equalizing-bar, and at a point midway between but somewhat in advance of a line connecting the pivots of bars 12 it is pivotally connected, as by a bolt 16, to a head 17, between which latter and a socket or plate 18, resting against a backing-block on the end sill of the car-body, is interposed a spring 21, preferably a duplex helical spring such as shown, tending to press and hold forward the head 17 with its attached equalizing-bar 13.

The front face of the head 17 in contact with the rear of the equalizing-bar is curved or rounded to permit said bar to turn upon its pivot 16 and thus permit either end of the buffing-plate to yield toward the buffer-beam, at the same time projecting the opposite end of the buffer-plate an equal extent and thus preserving intimacy and equality of contact with the opposing buffer-plate.

In front of the equalizing-bar, with its outer end bearing centrally upon the buffer-plate, is a plunger 19, passing through the buffer-beam and having its head in contact with the equalizing-bar in front of the pivot 16. The head of this plunger 19 engages the equalizing-bar at equal distances on opposite sides

of the pivot 16, so that when pressure is applied to said plunger 19 it will have a tendency to swing the equalizing-bar around and hold it substantially parallel with the end sill 5 of the car and the buffer-plate. This pressure is supplied normally by a spring 25, interposed between the head of the plunger and a plate or socket 26, secured to the inner face of the buffer-beam.

10 When the car is uncoupled and standing alone, the spring 21, by reason of its superior power, forces the equalizing-bar forward to the extreme of its movement, slightly compressing spring 25 and projecting the buffer-plate squarely beyond the face of the buffer-beam. Upon bringing two cars together, as 15 when coupling, the buffer-plates are forced back and springs 21 placed under compression, the equalizing-bars and plungers accompanying the buffer-plates in their rearward movement. In turning a curve one end 20 of the buffer-plate will necessarily be forced toward the buffer-beam and the opposite end correspondingly projected as the equalizing-bar is swung upon its pivot; while at the same 25 time the pressure of spring 25, transmitted through the head of the plunger instead of being exerted equally on opposite sides of pivot 16, will now be transferred wholly to one 30 side of the pivot—the side opposed to that upon which the pressure which caused the deflection of the buffer-plate was exerted—so that when the cars are again brought into line and the deflecting pressure is relieved 35 the buffer-plate will be automatically swung around into position at right angles to the car.

The action of spring 25 in effecting the return of the equalizing-bar and buffer-plate 40 when the cars are coupled is supplemental to the more powerful action of the buffer-spring 21, which latter, as the cars are coupled, is driven back by pressure transmitted through plunger 19, so that the equalizing-bar is 45 pinched, as it were, between the head of the plunger and the pivotal support upon which the buffer-spring acts. Consequently when the equalizing-bar yields, as in turning a curve, it tilts on the head of the plunger and still further compresses the buffer-spring, the 50 fulcrum on which the equalizing-bar turns standing slightly to one side of the pivot 16, upon which the buffer-spring is operating. Hence the pressure of said spring is exerted in opposition to the pressure which causes 55 the lateral displacement of the equalizing-bar and tends to restore the latter to its normal position.

To prevent binding and provide for freedom of motion, the inner end of one or both 60 rods 12 is or are provided with a loose connection, such as is produced by forming an elongated slot or slots in the end of bar 12 for the reception of the pivot-pin, as indicated in Fig. 1.

65 For convenience and economy of construction the equalizing-bar is formed in two sections, the lower section being the longer and

having its ends engaging the guideways 14, while the upper and shorter section is held removed from the lower section by space- 70 blocks 27, thus forming a slot for the reception of the flattened body of head 17.

The pivot-pins connecting rods 12 to the equalizing-bar are preferably arranged slightly in rear of the pivot 16, which connects it with the head 17, in order that as the 75 equalizing-bar is swung by pressure applied to one end of the buffer-plate the leverage on the opposite end of the equalizing-bar will be increased, thus aiding in returning 80 the buffer-plate to position as the train straightens out. It will be observed of this structure that the thrust in coupling and in the case of collision is borne squarely by the buffer-plate, and the pressure or shock is 85 transmitted to the equalizing-bar through bars 12 and plunger 19 first operating to compress spring 21, and if the pressure is sufficient to entirely overcome the resistance of said spring the equalizing-bar will be seated 90 and supported at three points—i. e., at each end, where it contacts with the abutments on the guides or ways, and at the center in line with plunger 19 when head 17 contacts with the end of the spring-casing 18. 95

As hereinbefore stated, one of the principal objects of this part of the invention is to automatically effect the return of the buffing-plate to normal position substantially 100 parallel with the front sill after having been deflected, as in turning a curve, and this object is attained by the construction described, wherein is embodied means for positively acting upon the equalizing-bar to force the latter and the connected buffer-plate 105 back to normal position.

Any approved form of automatic coupler may be employed in conjunction with the buffer-rigging described, and in the drawings there have been illustrated two equivalent modes of applying long and short bar- 110 couplers.

Referring more particularly to Figs. 1, 2, and 5, illustrating the long bar-coupler, 30 and 31 designate the guides for the coupler 115 bar or shank secured to the under sides of the two inner or through metallic beams 1, and 32 are plates attached to said beams 1, which plates, in conjunction with recesses in said beams, furnish slots or ways for the reception of the cross-bars 33, extending transversely through the spring-casing 34 at opposite ends of the coupler-spring 35. The 120 upturned ends or projections 36 on plates 32 enter and engage notches or recesses cut in the flanges of the beams 1, thereby preventing longitudinal movement of the plates upon the beams. 125

The construction illustrated in Fig. 7 is similar to the foregoing, but adapted to the 130 short coupler, hence omits the guide in which the bar or shank of the long coupler is sustained.

It is to be noted that the buffing and draft

(coupler) riggings are both connected to and sustained by the metallic beams 1, projecting beyond the car-body, and that the buffing and draft strains are transmitted from one car to another through the beams 1, rendering the car less liable to destruction in the event of collision.

The term "car-body" as herein employed embraces the sides, ends, roof, (if any,) floor, and floor timbers, including the sills, and the term "substructure of the car-body" is designed to include the base or supporting substructure, comprising the sills and supporting timbers upon which the sides, ends, and flooring are mounted and secured.

The metallic beams 1 do not form a part of the car-body, but merely a support for the latter and a means for sustaining the draft and buffer rigging. In other words, said metallic beams constitute the connecting-link between the buffer-beams, draft and buffer rigging and the car-body.

Having thus described my invention, what I claim as new is—

1. The combination with the base or substructure of an integral car-body, of the metallic beams 1 rigidly secured to and beneath the car-body and extending beyond the ends of the latter, and the buffer-beams secured to said beams 1; substantially as described.

2. The combination with the base or substructure of a car-body, of a series of metallic beams extending longitudinally of and beneath the car-body, said beams extending beyond the ends of the car-body, to form platform-supports; fastenings rigidly securing the car-body to the longitudinal beams; the buffer-beams secured to the said longitudinal beams; and the draft and buffer rigging also attached to said longitudinal beams; substantially as described.

3. The combination, to form a support for the car-body, and a basis for the attachment of the draft and buffer rigging of the following elements, to wit: the parallel metallic beams 1 provided with horizontal flanges and rigid cross-pieces for the support and attachment of an integral car-body; the buffer-beams secured to the ends of said metallic beams beyond the ends of the car-body; and the brace-plate with vertical flanges, said brace-plate resting horizontally above the metallic beams 1 between the buffer-beam and the end sill of the car-body, substantially as described.

4. The combination, to form a support for an integral car-body and a basis for the attachment of draft and buffer rigging, of the following elements, to wit: a series of parallel metallic beams extending longitudinally beneath and projecting beyond the end of the car-body; a series of cross-pieces rigidly attached to and extending laterally of said beams, each of said cross-pieces constructed in two sections embracing the beams; and the buffer and draft rigging secured to said lon-

gitudinal beams beyond the end of the car-body, substantially as described.

5. The combination with the substructure of a car-body, of a supporting-frame comprising flanged metallic beams 1 extending longitudinally beneath the car-body and united by cross-pieces 2 and 3, extending laterally beneath the car-body, the whole rigidly united and secured together; the buffer-beam secured to the beams 1 beyond the end sill of the car-body; and the horizontal brace-plate secured to beams 1 intermediate the buffer-beam and end sill and provided with vertical flanges engaging said buffer-beam and end sill; substantially as described.

6. The combination to form an automatically-adjusting buffing-rigging of the following elements, to wit: an equalizing-bar pivotally attached to a yielding support and adapted to swing in a horizontal plane; a buffer-plate; connections between the arms of the equalizing-bar and the buffer-plate on opposite sides of the pivot sustaining said equalizing-bar, so that the latter and the buffer-plate will be held in substantially parallel planes; and mechanism acting upon the equalizing-bar and through the latter upon the buffer-plate to restore said parts to normal position, that is transverse to the car, after having been deflected, substantially as described.

7. In combination with the buffer-beam, its support and the buffer-plate; an equalizing-bar having its arms connected to the buffer-plate on opposite sides of the center; guides or ways for the equalizing-bar; a pivotal support for the equalizing-bar intermediate the points of connection with the buffer-plate; a spring engaging said pivotal support in rear of the equalizing-bar; and a spring-pressed plunger interposed between the buffer-plate and the equalizing-bar and engaging the latter on opposite sides of its center of oscillation; substantially as described.

8. The combination with the buffer-beam and its support; the buffer-plate; a pivotally-supported equalizing-bar; rods pivotally connected at opposite ends to the equalizing-bar and buffer-plate respectively; a spring engaging the pivotal support for the equalizing-bar in rear of the latter; a plunger interposed between the buffer-plate and the equalizing-bar in line with the pivot of the latter, said plunger passing through a guide-opening in the buffer-beam and engaging the equalizing-bar on opposite sides of the pivot; and a spring interposed between the buffer-beam and plunger for holding the latter in contact with the equalizing-bar; substantially as described.

9. In combination with the car-body, the buffer-beam and the beams 1 supporting the buffer-beam; the buffer-plate; a pivoted equalizing-bar; guides or ways on the beams receiving the ends of the equalizing-bar; a head to which the equalizing-bar is pivoted at a point intermediate the connections with

the buffer-plate; a spring interposed between said pivot-head and a socket attached to the end sill; a plunger interposed between the buffer-plate and the equalizing-bar and engaging the latter in advance of its pivot; and a spring engaging said plunger to hold it in contact with the equalizing-bar; substantially as and for the purpose specified.

10. The combination with the buffer-plate and its supporting-rods, of an equalizing-bar pivotally supported by a vertical pivot located at a point intermediate and slightly in front of the points or pivots connecting said supporting-rods to said equalizing-bar; substantially as described.

11. The combination of the buffer-plate, the centrally-pivoted equalizing-bar arranged to oscillate in a horizontal plane, the rods connecting opposite ends of the buffer-plate to the arms of the equalizing-bar at points in rear of its central pivot, and a spring-pressed plunger interposed between the buffer-plate and equalizing-bar and engaging the latter; substantially as described.

12. In combination with the substructure of the car-body, the longitudinal supporting-beams to which the car-body is rigidly secured, said beams extending beneath and beyond the ends of the car-body; the buffer-beam secured to said extensions of the supporting-beams; the brace-plate secured to the longitudinal supporting-beams between the end sill of the car-body and the buffer-beam; the buffer-plate located in front of the buffer-beam and supported upon two rods extending in rear of said beam; and the equalizing and automatic return mechanism located in the space between the end sill and buffer-beam, above the brace-plate, substantially as described.

13. In a platform equipment such as de-

scribed, the combination of the following elements, to wit: an integral car-body; metallic supporting-beams extending longitudinally beneath the car-body, and projecting beyond the end sill thereof, said supporting-beams and car-body being rigidly secured together; the buffer-beam and platform secured to the supporting-beams beyond the end of the car-body; and the buffer-rigging supported above and the draft-rigging below the said supporting-beams; substantially as described.

14. The combination with the substructure of the car-body, of the parallel supporting-beams extending longitudinally beneath the car-body and beyond the ends thereof; the draft-rigging secured beneath said beams; and the buffer-rigging mounted upon and above said supporting-beams in line with the sills of the car-body; substantially as described.

15. In combination with the beams supporting the platform and the buffer-beam; the buffer-plate; the rods supporting the buffer-plate; the equalizing-bar supported at the ends in ways on the beams; the head to which the equalizing-bar is pivoted; the spring engaging said head in rear of the pivot; the plunger engaging the equalizing-bar in front of its pivot and extending through the buffer-beam with its outer end in contact with the buffer-plate; the spring engaging the plunger to hold it in forcible contact with the equalizing-bar; and the coupler secured in position upon the supporting-beams and extending longitudinally thereof in the same vertical plane with the plunger and pivot of the equalizing-bar; substantially as described.

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