R. D. GALLAGHER, Jr.

BUFFING MECHANISM.

APPLICATION FILED DEC. 22, 1909.

974,654. **Patented Nov. 1, 1910.**

3 SHEETS—SHEET 1.

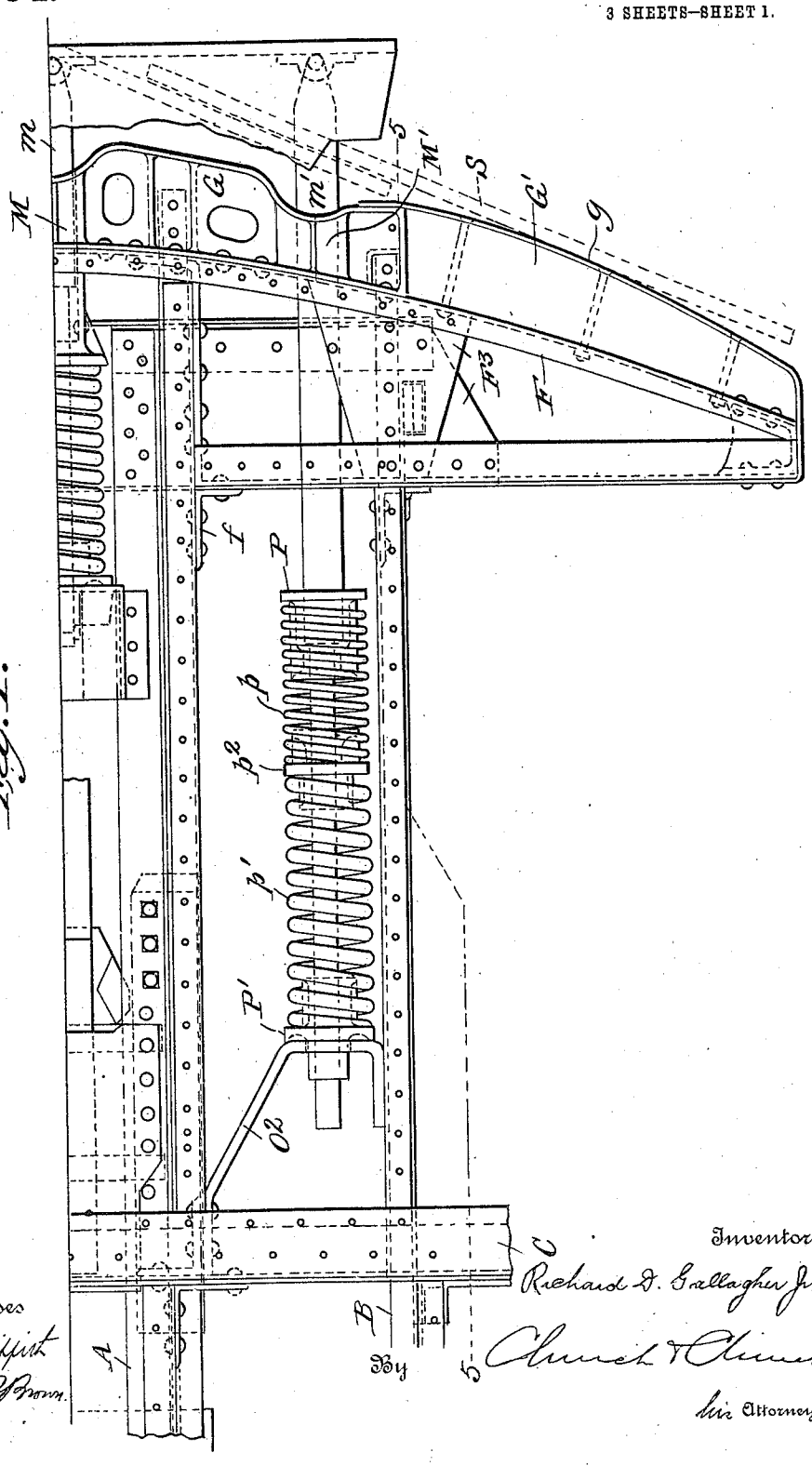

Fig. 1.

Witnesses
Elizabeth Griffith
Herbert P. Brown.

Inventor
Richard D. Gallagher Jr.
By Church & Church
his Attorneys

R. D. GALLAGHER, Jr..

BUFFING MECHANISM.

APPLICATION FILED DEC. 22, 1909.

974,654.

Patented Nov. 1, 1910.

3 SHEETS—SHEET 2.

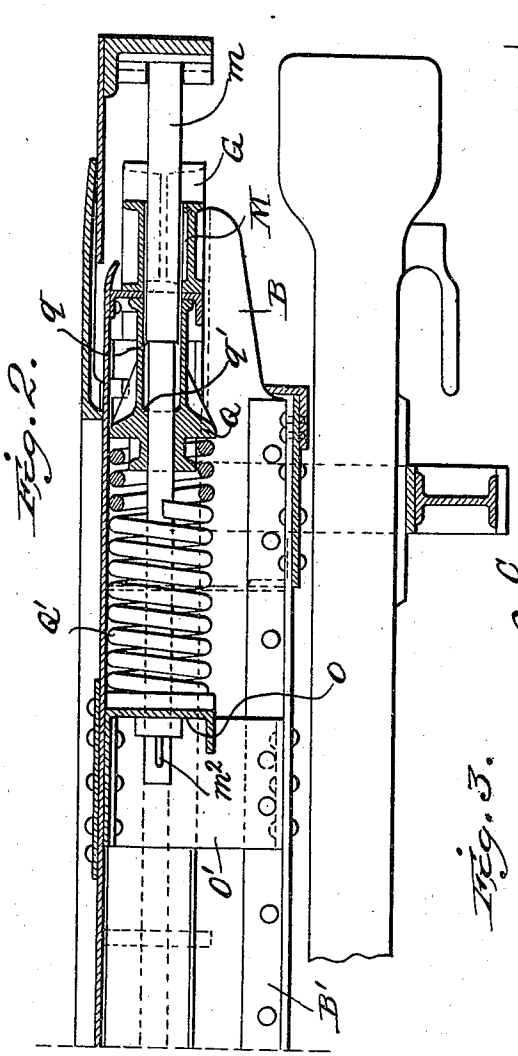

Fig. 2.

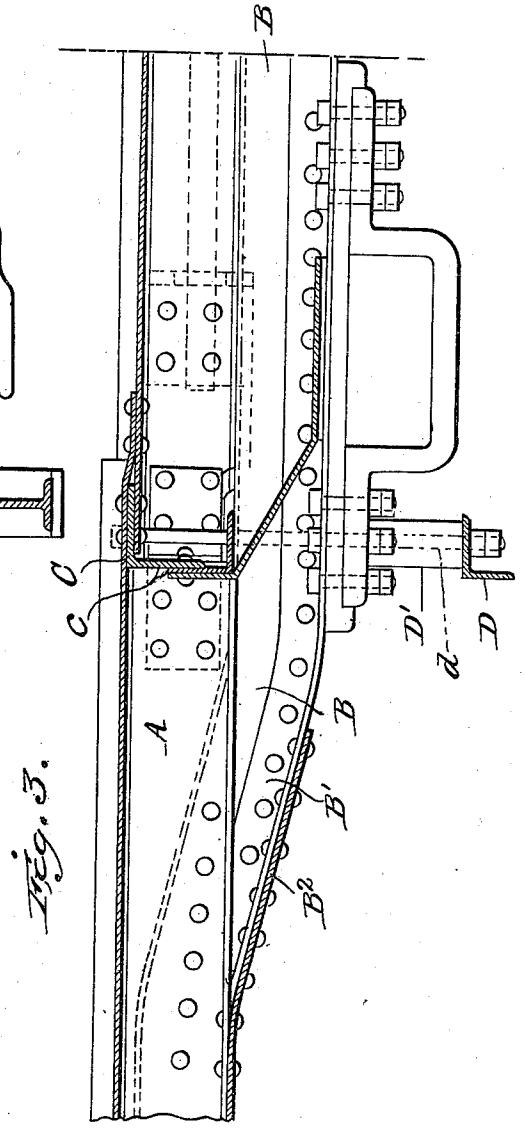

Fig. 3.

Witnesses

Elphut Goppitt

Halbert P. Brown

Inventor

Richard D. Gallagher Jr.

By Church & Church

his Attorneys

R. D. GALLAGHER, Jr.

BUFFING MECHANISM.

APPLICATION FILED DEC. 22, 1909.

974,654.

Patented Nov. 1, 1910.

3 SHEETS—SHEET 3.

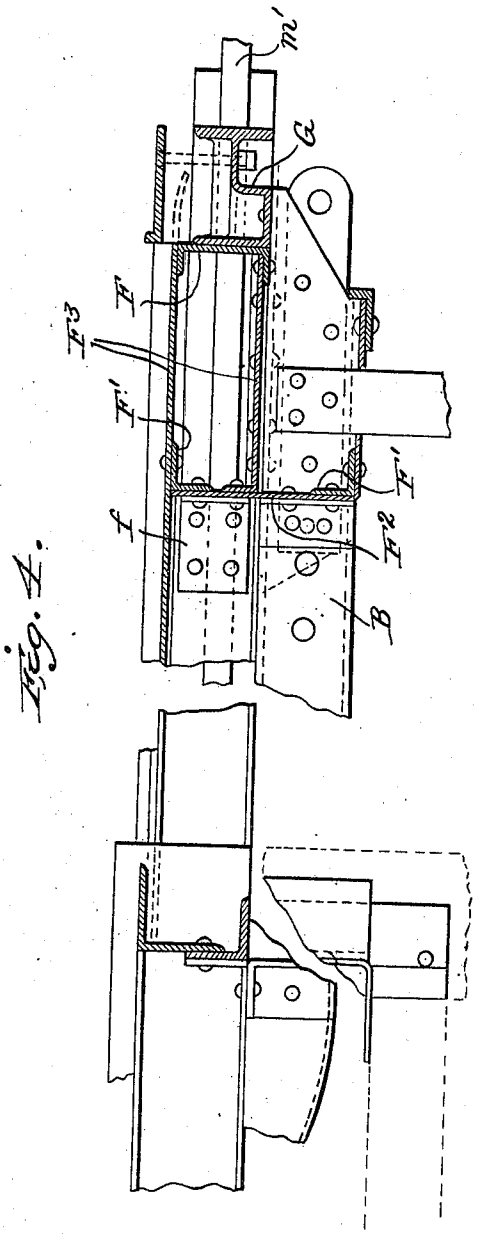

Fig. 4.

Witnesses

Elizabeth Griffith

Halbert P. Brown

Inventor

Richard D. Gallagher Jr.

By Church & Church

his Attorneys

UNITED STATES PATENT OFFICE.

RICHARD D. GALLAGHER, JR., OF NEW YORK, N. Y., ASSIGNOR TO STANDARD COUPLER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

BUFFING MECHANISM.

974,654. Specification of Letters Patent. **Patented Nov. 1, 1910.**

Original application filed May 21 1909, Serial No. 497,489. Divided and this application filed December 22, 1909. Serial No. 534,477.

To all whom it may concern:

Be it known that I, RICHARD D. GALLAGHER, Jr., a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Buffing Mechanism; 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.

This invention relates particularly to the construction of passenger cars and to the buffing mechanism of the same, and this application is a division of my prior application, Serial No. 497,489, filed May 21, 1909.

The objects of the invention are to improve the construction and arrangement of the movable and resilient elements of the buffing mechanism, as well as the fixed pressure resisting elements for transmitting the strains to the body of the car.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will now be described and pointed out particularly in the appended claims.

Referring to the accompanying drawings—Figure 1 is a plan view of a portion of a car frame and buffing mechanism at one end of a car lying on one side of the longitudinal center, the flooring and super-structure being removed. Figs. 2 and 3 are sectional views in a central vertical plane, said views illustrating continuations of the same parts, and Fig. 4 is a vertical section on the line 5—5, Fig. 1, with parts broken away.

The car frame illustrated in the accompanying drawings embodies main longitudinal sills A of channel-iron section and preferably extending from end to end of the car. In addition to the longitudinal sills A, supplemental longitudinal sills B are provided which, on the inner side of or between the end sills C of the body, are adapted to lie flat against the longitudinal sills A, as described in my said prior application. The supplemental sills B are bent down to pass beneath the end sills C of the car, as best seen in Fig. 3 and they extend to the end of the car to form the draft timbers. By thus bending or off-setting the supplemental sills B they are, at a point within or between the end sills of the car elevated to a sufficient height to afford the necessary space for electric motors, etc., without weakening the frame construction and without tendency to throw the parts out of alinement under severe buffing or draft strain.

To reinforce the supplemental sills B, they may be provided with reinforcing angle iron edge pieces B′ at the lower edge and where they depart from the plane of the longitudinal sills A they may be conveniently riveted to suitable bottom strengthening plates B^2 (Fig. 3).

The end sill C is built up across the ends of the sills A and is preferably formed of angle irons *c* riveted together and suitably connected to the ends of the sills A. Said end sill C is further braced and strengthened by an inverted truss-iron D secured thereto at its ends and passing down beneath the sill B and beneath the spacers or queen posts D′ through which bolts *d* pass upwardly to connect the truss and center sill at each side of the center.

The buffer beam which is also built up of angle irons and plates, is rigidly mounted on the ends of the supplemental sills and longitudinal platform sills, thus, as shown, particularly in Fig. 4 it will be seen that a curved channel iron F forms the front of the body of the buffer beam, and angle irons F′ connected by a plate F^2 form the rear wall of the buffer beam. The plate F^2, it is obvious, need not be continuous from end to end of the buffer beam, but may be interrupted between the central longitudinal platform beams, but it is connected to said platform sills and to the supplemental sills B by brackets *f*. Between the angle iron F′ and channel F suitable bracing plates F^3 may be introduced, as shown in Figs. 1 and 4.

To the front of the channel iron F at the center of the buffer beam there is secured the buffer beam extension G preferably made of malleable iron. Conveniently, the extreme ends of the supplemental sills B extend under and support the buffer beam extension. The general contour of the forward face of the buffer beam extension is curved and at the ends of said extension, the buffer beam is strengthened and rounded by a filling piece G′ which may be of wood with a metal face *g*, the general curvature

of said face conforming to the general curvature of the buffer beam extension for a purpose which will presently appear.

The buffer beam extension and buffer beam are provided with bearings M and M′ for the center and side stems m and m' of the buffer. Said stems are pivotally connected with the buffer at their forward ends and at their inner ends coöperate with the buffer springs and parts to be now described. The center stem m at its inner end passes through a bracket O held by a bridge piece O′ between the longitudinal platform sills and is prevented from outward movement by a key m^2. This limits the outward movement of the buffer at the center but without interfering with the capacity of said buffer to move angularly from, say the position indicated in full lines in Fig. 1 to the position indicated in dotted lines in said figure. The side stems m' at their inner ends are supported in brackets O^2 and carry spring followers P and P′, the latter being mounted on the bracket O^2 and forming bearings for the inner end of the stem. Between the followers P and P′ two springs are confined, one lettered p being a relatively light spring with a long range of elasticity and the other p' being a relatively heavy spring. Said springs may be conveniently separated by a spacer p^2 and in operation it is intended that initial inward movements of the buffer shall be resisted practically exclusively by the lighter springs p, the range of movement being such that the buffer may be moved inwardly until coupling is effected without undue resistance but from the coupling position to the final seating of the parts the resistance shall be greatly augmented, owing to the fact that the movement of the outer springs is then entirely absorbed and the heavier springs are brought into action. To prevent deformation or setting of the lighter springs the follower P and spacer p are adapted to contact when the initial movement resisted by said springs is ending and from thenceforth inward movement is resisted entirely by the heavier springs. During the initial inward movement of the buffer the center stem m (Fig. 2) is not designed to exert any outward pressure, owing to the fact that its shoulder q is normally spaced away from the coöperating shoulder q' of its forward follower Q and consequently the center stem spring Q′ located between the follower Q and the bracket O is not put under increasing tension until the shoulders q and q' engage and move the follower Q inwardly. Forward movement of the follower Q is limited by the buffer beam, whereby the side springs p will, in effect, give the final outward movement to the buffer and will alone resist initial inward movement of the same. The arrangement of the springs described permits of a very wide range of angular movement of the buffer as, for instance, when rounding short curves and, in order to take care of the coöperating buffers under extreme conditions, the parts are so proportioned and the outer face of the buffer beam is so shaped at the ends that the coöperating buffer will, when occupying a position at one side of the center, bear against the rounding face of the buffer beam. This extreme condition is illustrated in Fig. 1 where the coöperating buffer or buffer on the adjacent car is indicated by the dotted lines S and it will be noted that in the extreme position indicated, one car being on a tangent and the other on a short curve, the buffers are parallel with each other, but are displaced transversely and each will partly rest against its coöperating buffer and partly against the coöperating filling piece of the buffer beam. The arrangement insures a good platform or bridge between cars at all times and further insures a proper buffing action, even under extreme conditions.

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

1. In a buffing mechanism, the combination with the buffer beam having bearings therein for the center and side stems, of the buffer, a center stem pivotally connected with said buffer, a bracket for limiting the outward movement of said center stem, a follower on said center stem, coöperating shoulders on the follower and stem normally out of engagement when the buffer is advanced, a spring interposed between said follower and bracket, side stems pivotally connected with the buffer, and side stem springs coöperating with said side stems and normally under tension tending to advance the buffer, the arrangement being such that initial inward movement of the buffer is resisted solely by the side stem springs, and final inward movement of the buffer is resisted by both the side and center stem springs.

2. In a buffing mechanism, the combination with the end sill, a buffer beam having a rounded outer face and supporting sills for said end sill and buffer beam, of a buffer, a center stem pivotally connected with said buffer and having a stop for limiting the outward movement of the buffer, side stems pivotally connected with the buffer, and springs for advancing said side stems and buffer, the construction being such that the angular movement of the buffer on the end of the center stem will permit the coöperating buffer to engage and rest against the outer rounded face of the buffer beam.

3. In a buffing mechanism, the combination with the buffer beam, buffer beam extension having a rounded outer face and

rounded filling pieces on the outer face of said buffer beam at each side of said buffer beam extension, of a buffer, a center stem on which said buffer is pivotally mounted, side stems pivotally connected with the buffer, springs coöperating with said side stems for advancing the buffer, and means coöperating with the center stem for limiting the outward movement of the buffer, the arrangement being such that angular movement of the buffer on the center stem will permit the coöperating buffer to rest against and be supported by the filling pieces at the sides of the buffer beam extension.

4. In a buffing mechanism, the combination with the buffer beam having bearings therein for center and side stems, longitudinal sills connected with said buffer beam and having brackets thereon provided with bearings for said center and side stems, of a buffer, a center stem pivotally connected at its forward end with the buffer and having an enlargement on its rear end coöperating with the bracket for limiting the outward movement of the buffer, a follower through which the center stem passes, a spring interposed between said follower and bracket for holding the follower advanced, means for limiting the forward movement of the follower, and coöperating shoulders on the follower and center stem spaced apart when the buffer is advanced to the limit of its movement and adapted to engage, to put the center stem spring under compression, only when the buffer has been moved inwardly, and side stems for normally holding said buffer advanced to the limit of its movement, substantially as described.

5. In a buffing mechanism, the combination with the buffer beam, longitudinal sills, brackets supported by said longitudinal sills and a center stem passing through the buffer beam and bracket and having an intermediate shoulder, of a buffer pivotally mounted on said center stem, an enlargement on the rear end of said center stem for limiting its outward movement, a follower on said center stem, means for limiting the forward movement of said follower, a spring interposed between said follower and bracket for resisting final inward movement of the center stem and buffer, said follower having a shoulder for coöperation with the shoulder on the center stem, the proportions of the parts being such that said shoulders are normally spaced apart whereby the buffer is free from the resistance of the center stem spring during initial inward movement.

RICHARD D. GALLAGHER, JR.

Witnesses:

ALEXANDER S. STEWART,

THOMAS DURANT.