(No Model.) 4 Sheets—Sheet 1.

W. F. RICHARDS.

CAR BUFFER.

No. 495,061. Patented Apr. 11, 1893.

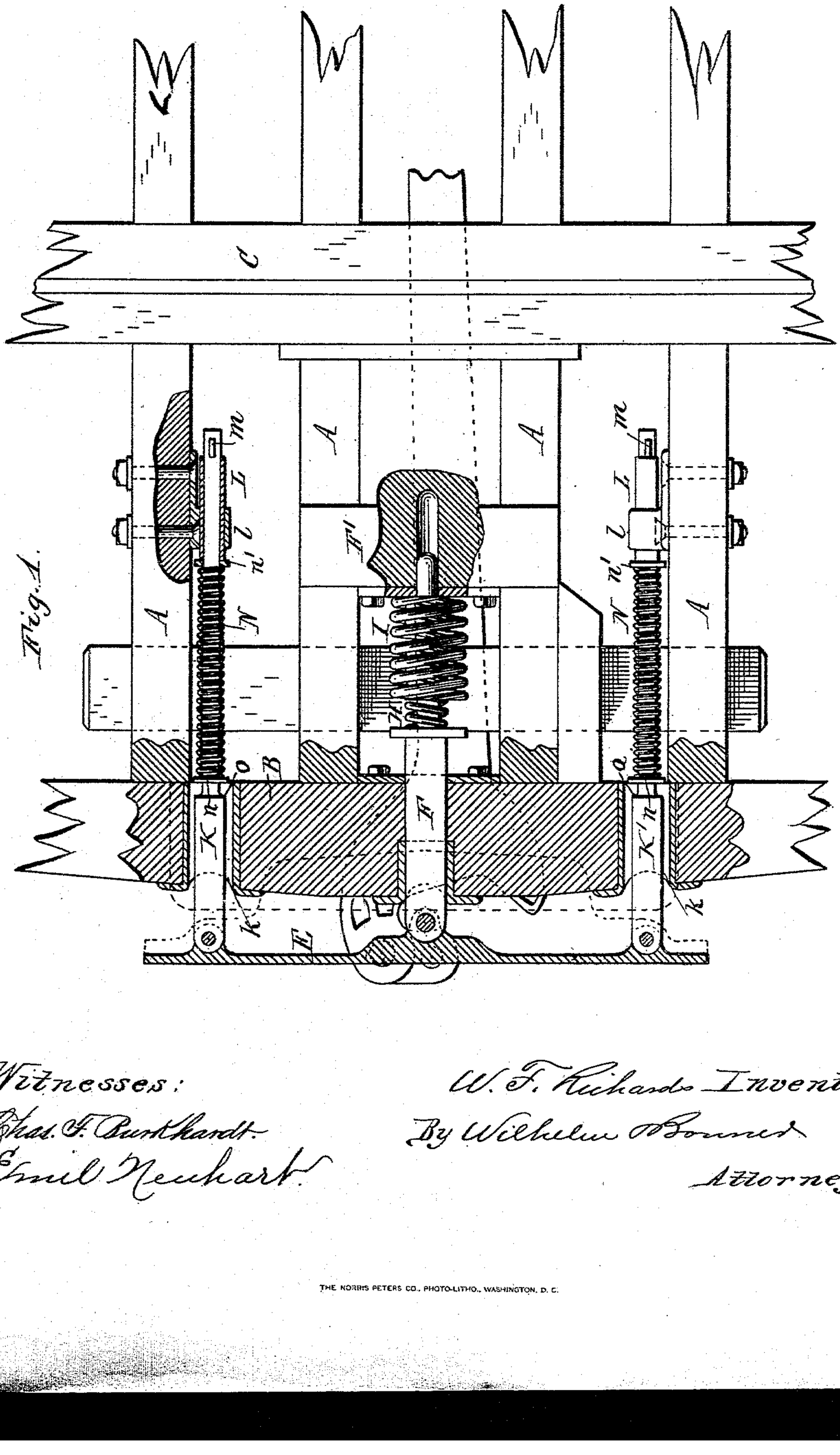

Fig. 1.

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W. F. Richards Inventor.
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(No Model.) 4 Sheets—Sheet 2.

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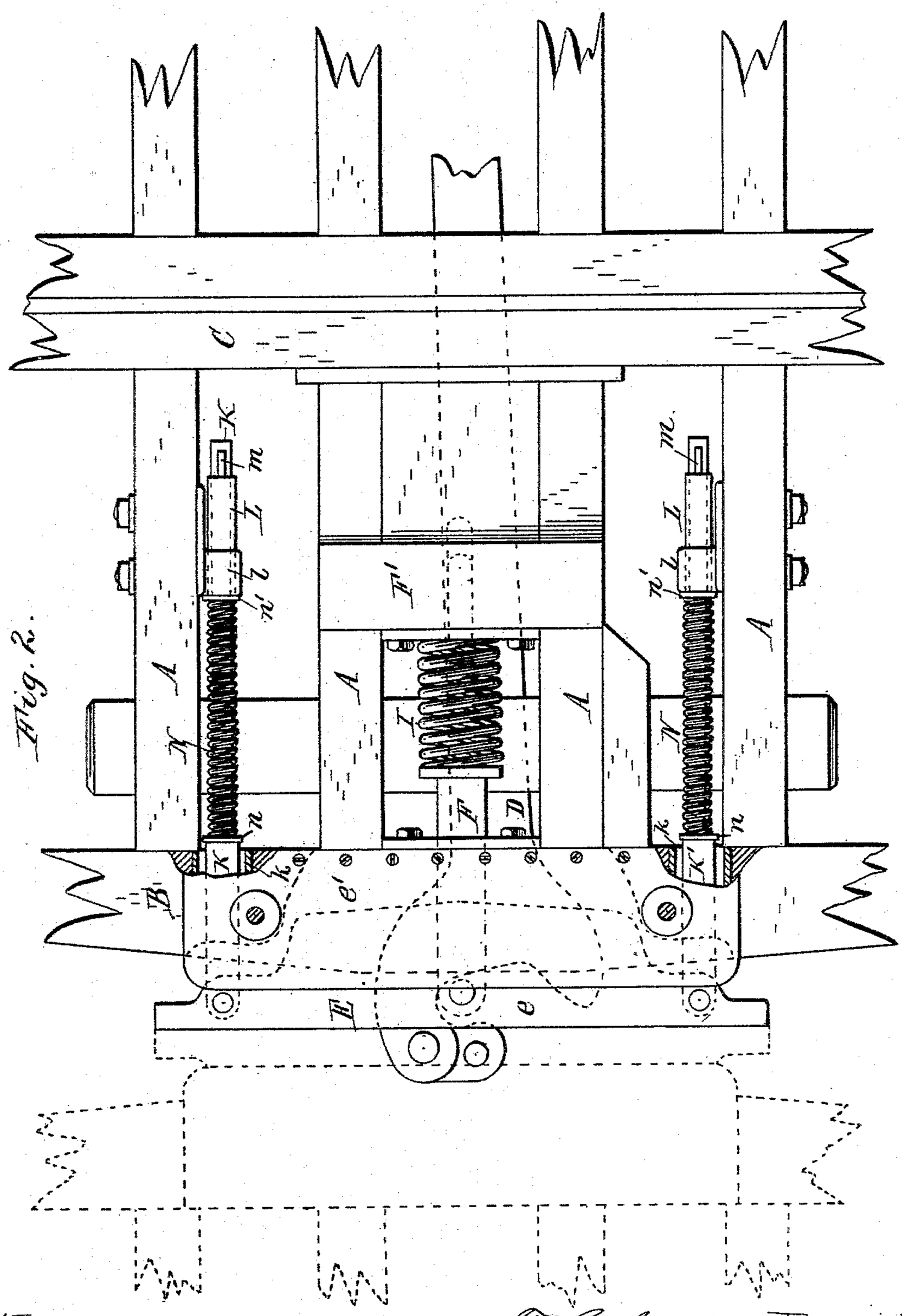

Fig. 2.

Witnesses:
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(No Model.) 4 Sheets—Sheet 3.

W. F. RICHARDS.

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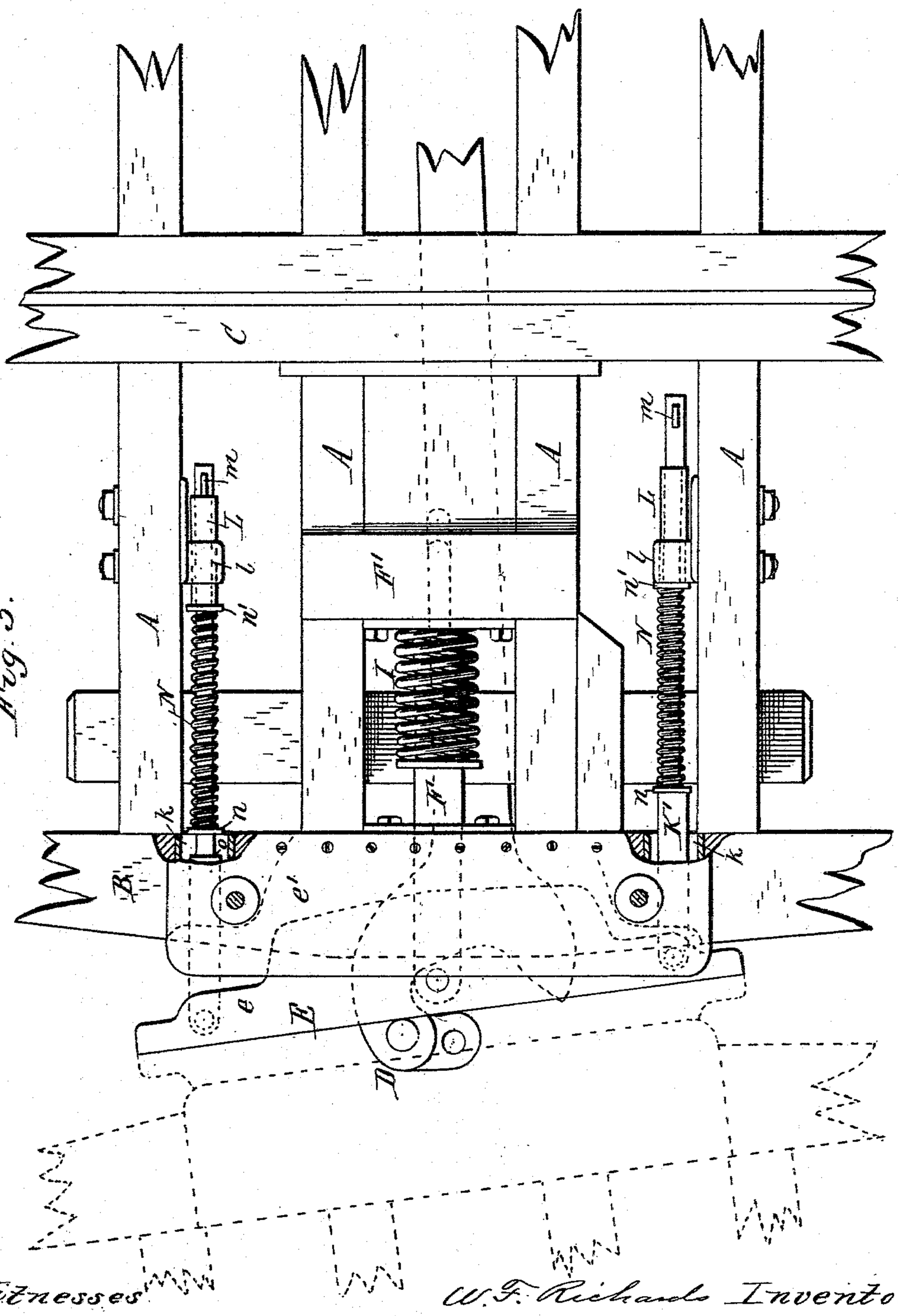

Fig. 3.

Witnesses
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(No Model.) 4 Sheets—Sheet 4.

W. F. RICHARDS.

CAR BUFFER.

No. 495,061. Patented Apr. 11, 1893.

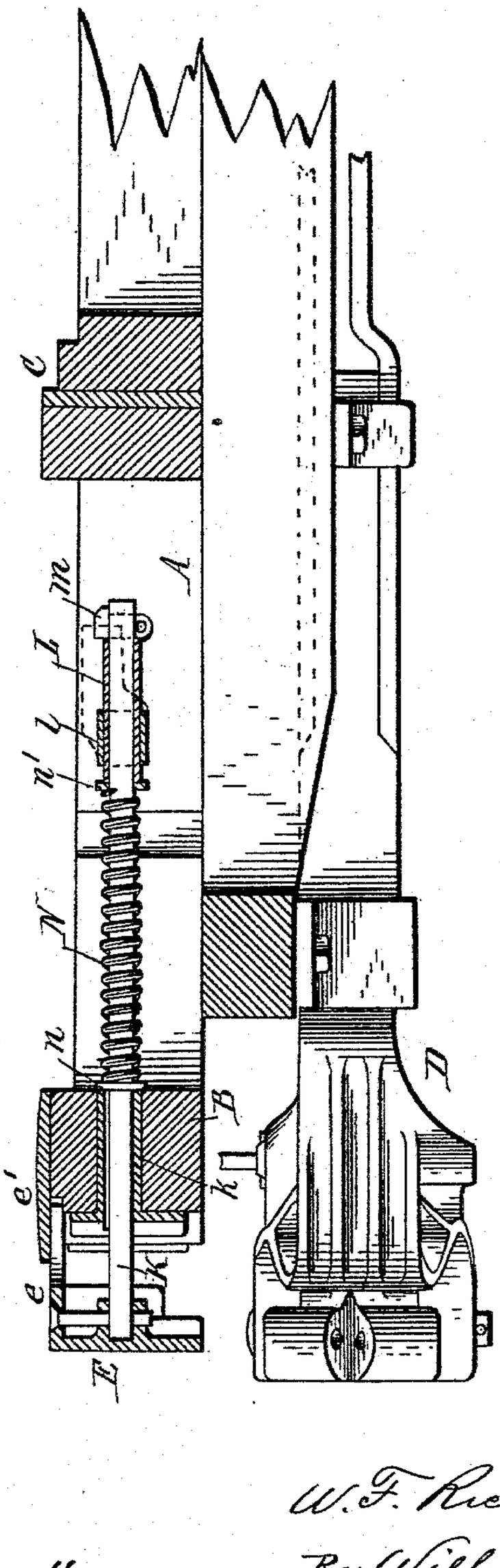

Fig. 4.

Witnesses:
Chas. F. Burkhardt.
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W. F. Richards Inventor.
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UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF BUFFALO, ASSIGNOR TO THE GOULD COUPLER COMPANY, OF NEW YORK, N. Y.

CAR-BUFFER.

SPECIFICATION forming part of Letters Patent No. 495,061, dated April 11, 1893.

Application filed December 22, 1892. Serial No. 455,994. (No model.)

To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Car-Buffers, of which the following is a specification.

My invention relates more especially to that class of car buffers or yielding platform extensions which are pivotally supported at the end of the car, so as to be capable of assuming an angular position with reference to the same in rounding curves, and in which the buffer is provided on opposite sides of its pivot with righting springs for returning it to its normal position parallel with the end of the car after passing a curve. The buffer is usually supported upon a stem or bar upon which is arranged a comparatively light spring for holding it in its extended position and a heavy buffer spring for opposing any violent shocks received by the cars. Prior to my invention, these buffers were provided with righting springs which served the additional function of supplementing the buffing action of the springs on the buffer stem; and in order to hold the buffer in its normal position with sufficient security to prevent its rattling when free or out of contact with an opposing car, these combined righting and buffing springs were made of such a length as to be under partial compression in the free or projected position of the buffer. When extended to its outermost position, the buffer usually projects about two inches beyond the retracted position which it occupies when the car is coupled to an opposing car, so that when the righting springs of the buffer are already partially compressed in the extended position of the buffer, as above mentioned, the resistance offered by such springs must be overcome in addition to that of the light extension spring of the buffer in coupling and uncoupling the cars, which is objectionable because in order to facilitate these operations, the resistance power of the springs which press out the buffer should be as light as possible, and yet sufficient to project the buffer to the required extent.

The object of my invention is to provide the buffer with simple and effective spring mechanism which acts not only to right or square the buffer when swung out of its normal position, but which at the same time augments the power of the buffer springs on the carrying stem of the buffer, without offering excessive additional resistance to the light entension spring of the buffer.

In the accompanying drawings consisting of four sheets:—Figure 1 is a sectional top plan view of the platform of a railway car provided with my improved buffer mechanism, showing the buffer free or fully projected, the flooring of the platform being omitted to expose subjacent parts. Fig. 2 is a top plan view of the platform, showing the position of the parts when the buffer is pressed inward by contact with an adjoining car, and the coupled cars are in line or running on a straight section of track. Fig. 3 is a similar view showing the position of the parts when the buffer is pressed inward and swung at an angle to the end of the car in rounding a curve. Fig. 4 is a longitudinal sectional elevation on line 4—4, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A represents the longitudinal timbers of the stationary car platform, B the cross timber connecting the outer ends of the longitudinal timbers, and C the end sill of the car body.

D is the draw bar which may be of any well known construction.

E is the buffer or yielding platform extension, consisting preferably of a transverse vertical buffer plate having at its upper end a horizontal threshold plate *e*, extending inwardly over the end timber B and which is overlapped by a foot plate *e'*, secured to the upper side of the end timber.

F is the main buffer bar or stem which carries the buffer E, at its outer end, and is guided with its outer portion in an opening formed in the end timber of the platform and with its inner portion in a similar opening formed in a transverse block F', secured between the longitudinal central timbers of the platform. The buffer is pivoted centrally to the outer end of the main buffer stem by a

vertical pin or bolt, so as to be free to oscillate and assume an angular position with relation to the end of the stationary platform.

H represents the light spiral spring arranged on the contracted inner portion of the buffer stem between the shoulder on the latter and the block F′, whereby the buffer is yieldingly held in its extended position.

I is the main or heavy buffer spring, surrounding the light extension spring H and which sustains any heavy shocks which overpower the light extension spring.

K K′ represent the longitudinal stay rods or side stems of the buffer which are pivoted at their outer ends to the buffer on opposite sides of its pivot and are guided with their outer portions in openings *k* formed in the end timber B. The inner portions of these stay rods slide in hollow followers or longitudinally movable tubes L, which are guided in horizontal openings formed in lugs or brackets *l*, projecting from the inner sides of the longitudinal timbers A. The outward movement of each of these rods in its follower, is limited by a key or cross pin *m* arranged in an opening in the inner end thereof.

N N are combined buffing and righting springs surrounding the contracted portion of the side stems. Each of these springs bears with its outer end against a collar or washer *n* arranged loosely on the stem and adapted to abut against the end sill, and with its inner end against a similar collar *n′*, also surrounding the stem and adapted to abut against the outer end of the tubular follower L. The latter collar may however, be formed in one piece with the tubular follower if desired. The shoulders *o* at the front ends of the reduced portions of the stems are so arranged, and the springs are made of such a length, that when the buffer is fully extended, the shoulders stand a short distance in advance of the washers *n*, say about one inch, and the collars *n′* stand about the same distance in advance of the lugs *l*. By this arrangement, when the buffer is fully extended, as shown in Figs. 1 and 4, the combined buffer and righting springs are compressed about one inch, so that any tendency of the buffer to assume a position at an angle to the end of the car platform is opposed by the springs, thereby not only squaring the buffer but also preventing it from rattling. The front collars *n* of the stay rods are wider and larger than the openings in the end sill through which the rods pass, as shown in Fig. 4. so as to prevent the springs from moving outwardly beyond the rear side of the end sill. When the buffer is pushed inward by contact with an opposing car, the stay rods move inward with the buffer, and during about the first inch of their inward movement, the combined buffing and righting springs are first relaxed and then slightly compressed, so that they offer only a slight resistance to coupling and uncoupling the cars. The continued inward movement of the buffer causes the inner collars of the stay rods to abut against the front sides of the lugs or brackets *l*, and the shoulders of the rods to bear against the washers or collars *n*, as shown Fig. 2, thereby compressing the springs between the two collars or washers, causing the same to act as buffing springs and supplementing the buffing action of the light extension spring. During this inward movement of the stay rods, the latter slide rearwardly through the tubular followers. When the buffer assumes an angular position in rounding a curve as shown in Fig. 3, both righting and buffing springs are compressed in opposite directions, the spring on the rod connected with the outwardly swung end of the buffer being compressed toward the end sill of the car platform by the outward movement of its follower, and the other spring being compressed toward the lug or bracket *l* by the inward movement of the outer collar *n* of the rod. The movement of the oscillatory buffer into this angular position, is thus opposed by both righting and buffing springs, so that as soon as the coupled cars round the curve, the compressed springs both react and return the buffer to its normal position parallel with the end of the car, thus effectually and promptly righting the buffer.

My improved buffer mechanism is very simple in construction, as it employs but two side springs for the threefold purpose of righting the buffer, preventing it from rattling and augmenting the power of the light extension spring. Its compactness also permits the use of comparatively long springs, without extending any of the parts inwardly beyond the ordinary limit, thereby rendering the spring mechanism more easy of action, avoiding the liability of over straining the springs and increasing their durability.

I claim as my invention—

1. The combination with the stationary car platform, and the oscillatory buffer, of tubular followers capable of longitudinal movement on the car frame, stay rods attached at their outer ends to the buffer on opposite sides of its pivot and sliding in said followers, and springs applied to said rods and abutting against said followers, substantially as set forth.

2. The combination with the stationary car platform, and the oscillatory buffer, of tubular followers capable of longitudinal movement on the car frame, stay rods attached at their outer ends to the buffer on opposite sides of its pivot and sliding in said followers, stops arranged on said rods for limiting their outward movement in said followers, and springs applied to said rods and abutting against said followers, substantially as set forth.

3. The combination with the stationary car platform or frame, having lugs or brackets, and the oscillatory buffer, of tubular followers sliding lengthwise in said lugs or brackets, stay rods attached at their outer ends to the buffer on opposite sides of its pivot and sliding in said followers, and springs applied to

said rods and bearing with their inner ends against said followers, substantially as set forth.

4. The combination with the stationary car platform or frame having lugs or brackets and the oscillatory buffer, of tubular followers sliding lengthwise in said lugs or brackets, stay rods attached at their front portions to the buffer on opposite sides of its pivot, sliding with their inner portions in said followers and provided on their front portions with shoulders, a collar or washer arranged loosely on each stay rod on the inner side of its shoulder, and combined righting and buffing springs arranged on said rods between said collars and the tubular followers, substantially as set forth.

Witness my hand this 17th day of December, 1892.

WILLARD F. RICHARDS.

Witnesses:
CARL F. GEYER,
FRED. C. GEYER.