N. B. ECCLESTON.

RAILWAY DRAW-BARS AND BUFFERS.

No. 180,121. Patented July 25, 1876.

Fig. 1

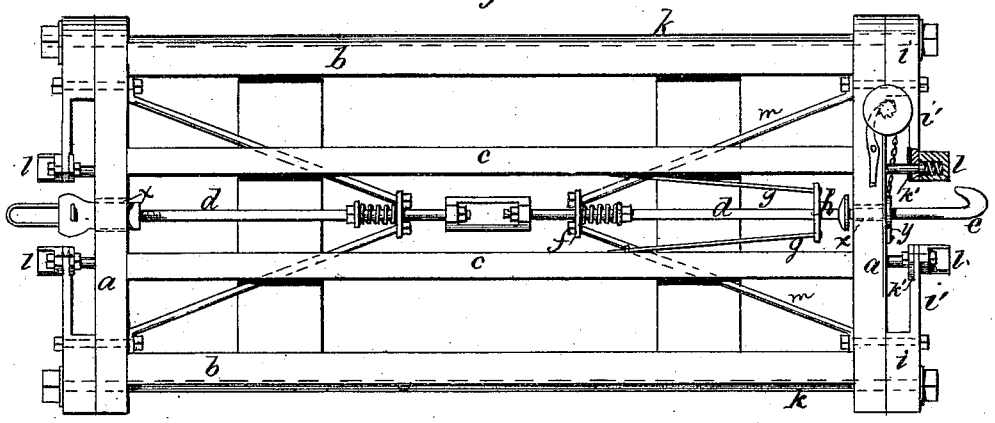

Fig. 2

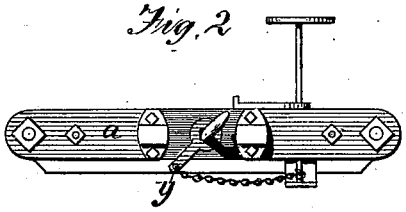

Fig. 3.

Witnesses
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NOYES B. ECCLESTON, OF OXFORD, NEW YORK.

IMPROVEMENT IN RAILWAY DRAW-BARS AND BUFFERS.

Specification forming part of Letters Patent No. **180,121**, dated July 25, 1876; application filed June 7, 1876.

To all whom it may concern:

Be it known that I, NOYES B. ECCLESTON, of Oxford, in the county of Chenango and State of New York, have invented a new and Improved Draw-Bar, Buffer, and Coupling for 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 part of this specification, in which—

Figure 1 represents a plan view of the bottom frame of a car-body with my improvements attached. Fig. 2 is an end view of the same, and Fig. 3 is a detached view of the hooks.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention relates to apparatus for connecting the cars to make up a railway-train; and consists of details of construction which will be fully set forth and particularly claimed in the following specification.

In the construction which I am about to explain I have aimed, first, to provide such a connection for the cars of a train that the springs on the draw-bar of each car shall sustain the weight of that car alone; second, to make the cars couple or uncouple without danger to the attendant; third, to avoid the use of pins and links; fourth, to make a strong and effective buffing, and place it in the line of greatest resistance; and, fifth, to so construct and arrange the whole that a car so equipped may be used with the present draw-bars and couplings.

In Fig. 1 of the drawings, *a a* represent the end sills of the bottom frame of a car-body, into which are tenoned the side sills *b b*. *c c* are longitudinal timbers, also of ordinary construction. Through the perforated sill of the car is passed a rod, *d*, on the outer end of which is a hook, *e*. This constitutes the draft-bar and coupling-hook of one end of the car. This draft-rod is made, preferably, square at the forward end and throughout the main portion, but is rounded in the rear, and passes through a yoke, *f*. This yoke is held by strong rods *m*, which pass through the ends of the yoke and back to the end sills, to which they are firmly fixed at a point near the side sills. After passing through this yoke the rod of the draw-bar extends into a swivel, and is held therein by a nut, so as to turn freely. Just in front of the yoke is a shoulder, made by a large nut on the draft-bar, and between it and the yoke is a spring, which is slipped upon the round part of the bar. This may be of any desired strength and amount of play.

The described apparatus is shown duplicated for each end of the car, and it will be observed, from the drawing, that any draft on one hook will, through the swivel, draw upon the spring on the end of the other draft-bar. The square end of the bar not only slides freely in the end sill, but may also turn, and is allowed some lateral motion. This is permitted by passing the draw-bar through a sleeve, through which, longitudinally, is made a square or polygonal hole, to suit the bar. This sleeve is held in place by a nut on the inside end of sleeve, and has lateral movement in the slot *x*. On the outer end of said sleeve is an arm or lever, *y*, which is connected to the shaft and hand-wheel by a chain, in such a manner that by turning that wheel the bar is turned, so as to bring the hook in a vertical plane, or inclined opposite to its normal position. In its normal position the hook is slightly turned aside, and so held. This is accomplished by two springs, *g g*, which are fixed at one end in the sides of the inner longitudinal beams, and at the other to the ends of a second yoke, *h*, slipped over the square part of the draw-bar, and sliding thereon. The forcible turning of the bar bends these springs—one up and the other down—and their reaction tends to bring the hook back into its normal inclined position.

The hook in the opposite draw-head is also inclined in the opposite direction, as shown in Fig. 3, and when the cars are brought together the hooks are held in their vertical or normal position by attendant until the hooks pass; then the attendant lets loose the pawl or ratchet, and the hooks resume their normal position and the cars are coupled. At the same time, if it be desired not to couple the cars, the hooks, by means of the vertical rod and hand-wheel, may be turned to a vertical position, and there held by an ordinary pawl and ratchet, so as to prevent interlocking. The hook is also such that an ordinary link

may be hooked over it. Ordinarily, however, as this draft-bar and its hook are in the line of greater resistance, and higher than those in common use, a bent link would be necessary for coupling one of these cars to one having the old form of coupling.

The buffers in my improvement are located, like the draft, in the line of greatest resistance—that is to say, directly upon the end of the frame, and in the same plane therewith. They consist of the strong blocks *i i* bolted to the end sills by the long rods *k k*, or in any other suitable way. These blocks are recessed, as shown, so that a thinner part, *i'*, extends inwardly toward the hook. On this part is placed a buffer of metal, marked *l*. It is recessed, as shown, by part broken away, and this recess is partly filled by a spiral or rubber spring, against which the head of a stout bolt rests. This bolt passes through the wood, and rests by the other end against the face-plate of the end sill. The metal buffer is shown as securely bolted to the plate *k'*, underneath the wood. By this construction it will be observed that, while the buffers are in the same line with the hooks or couplers, they may have ample strength and elasticity. This is attained by the thinner wooden part, or by the spring within the metal buffer. The parts being bolted, as shown, the shock is distributed to the frame-work of the car.

The general operation of all the features of my improvement will be apparent from the description. In effect, the coupling and draft bar extends, when connected, for all purposes of draft, through the entire train, while the spring of each car, at whatever place in the train the car may be, whether first or last, sustains only the weight of the car to which it is attached. The draft of each car is also upon the rear end sill, into which the side sills are tenoned, by which all strain upon the parts and tendency to tear out are avoided. At the same time, while the draft-bars are practically continuous for their own special purpose, they are made sectional for the purposes of repairs as well as of contraction, in the buffing of the cars, by reason of the ends sliding into the swivel.

It should be noted also that the rods extending from the yokes to the end sills are attached near the side sills, and the resistance is thus thrown upon them. The rods outside the sills serve to bind all the parts securely.

I am aware that draw-bars extending through the car, and drawing the car through an independent spring, are not new, and such I do not broadly claim.

I claim as my invention—

1. A draft-bar, extending through the car, with couplings on the outer ends, with the intermediate swivel-connection, and with the yokes connected to the car-frame, and springs held between the yokes and nuts on the bars, as and for the purposes set forth.

2. The draft-bar, extending through the car, with intermediate swivel-connection, made both to slide longitudinally, and to turn, and provided on the outer ends with hooks, as and for the purposes set forth.

3. The draft-bar made to slide and turn, in combination with the sleeve in the end sill, having rotary movement, and also lateral movement in the slot, as set forth.

4. In combination with the draft-bar, made to slide or rotate, the yoke *h* and springs connected thereto, as and for the purpose set forth.

5. In combination with the yoke, which sustains, through the springs and draft-bar, the resistance of the car, the rods *m* attached to the end sills, as and for the purpose set forth.

6. The spring-buffers, composed of the blocks *i i*, recessed on one end, and fixed to the end sill at the other, as set forth.

7. The spring-buffers, composed of the blocks *i i*, metal heads recessed to receive the springs, and the bolts extending back to the face-plates, as set forth.

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Witnesses:
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