E. M. LAW.

Car-Coupling.

No. 165,450. Patented July 13, 1875.

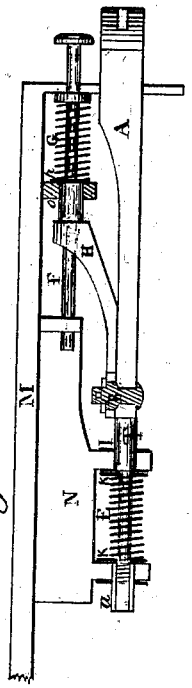

Fig 2. Side View.

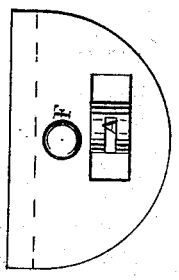

Fig 3. End View.

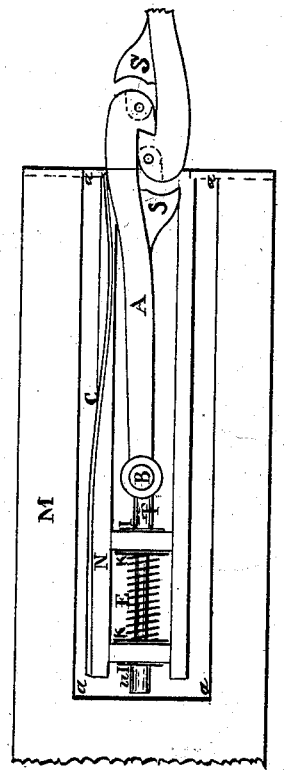

Fig 1. Plan.

Portion of Cover a, a, a, a, removed to show the action of the coupler as an auxiliary buffer.

Witnesses,
Holland Belfry
William Gill

Inventor,
Edward Marsden Law

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD MARSDEN LAW, OF BELL EWART, CANADA, ASSIGNOR OF ONE-HALF HIS RIGHT TO HOLLAND BELFRY, OF SAME PLACE.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **165,450**, dated July 13, 1875; application filed February 13, 1875.

To all whom it may concern:

Be it known that I, EDWARD MARSDEN LAW, of the village of Bell Ewart, in the county of Simcoe, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to self-acting car-couplers now in use for passenger-cars, the draw-bars of which are of considerable length and pivoted near the inner end, the front ends being formed with a hook on the inside, and have a flat spring on the outside, which presses laterally on the hooked end of the draw-bar, for the purpose of assisting to couple, and to keep the hooks securely in position when coupling has taken place.

To keep the hooks in position when coupled has not hitherto been successfully accomplished, it having been found that, when a train is running upon an imperfect track at a high speed, uncoupling has taken place from the jolting and oscillation of the cars.

The object of my invention is to prevent any such occurrence as now referred to, and even on an imperfect track. I accomplish this by means of an improved buffer, the action of which will be at all times uniform and reliable. The buffers at present in use in connection with these couplers are not reliable, from their not being connected with the draw-bar, so that whenever the draw commences on the starting of a train the buffer separates, and consequently ceases to act.

My improved buffer will always act, exerting, by means of a certain degree of compression imparted to it in the process of coupling, a tensional strain upon the hooks of the draw-bars, securing the hooks in position, and keeping the cars of a train in a more compact relation with each other, and affording additional comfort and safety to the passengers therein. I also construct the draw-bar of my coupler with a shoulder on the inner part of the hooked end, in such a manner that the said draw-bar will, in cases of violent concussion, also act as a buffer, so that the severity of the shock will be very considerably lessened, and the train itself suffer less injury.

In the accompanying drawings the same letters of reference indicate the same parts in all the views and in this specification.

Figure 1 is a plan, representing the under side of the floor M of a car, also a portion of the frame-timbers N below the floor, to which timbers the mechanism of my coupler is attached.

A is the draw-bar; C, the side spring; B, a pivot at the inner end of the draw-bar, upon which it swings sidewise to couple; T, the draw-bolt, the inner end of which forms the pivot B, already referred to. The body of this draw-bolt is decreased in size, in order to provide for two collars, the one being a portion of the bar, full size, the other is obtained by the sleeve *u*, the use of the aforesaid collars being to operate the two sliding plates K K at the ends of the draw-spring. I I are two stationary guides for the draw-bolt, which has a forward and backward motion in the same. E is the draw-spring. O is a cross-bar, being one of the frame-timbers below the floor of the car, with an aperture made in it to admit the front end of the compression-bar H, which, when the car is at rest, is flush with the face of the said cross-bar. *p* is an interposed sliding plate of iron, of sufficient size to project at least two inches over the aperture in the cross-bar, to resist the compression of the buffer-spring G upon the face of the said cross-bar O.

Fig. 2 is a side view, representing the edge of the floor M of a car, and also a portion of the frame-timbers N below the floor, showing the draw-bar A, pivot B, draw-bolt T, sleeve on draw-bolt *u*, draw-spring E, sliding plates K K, guides I I, angular compression-bar H, buffer-spring G, and buffer-bar F, cross-bar O, and interposed sliding plate *p*.

On reference to the drawings it will be seen that when the buffer-bar F of each of two cars which are to be coupled come together, they will compress the buffer-spring G of each car upon the plate *p* on the face of cross-bar O about one inch, before the hooks of the draw-bars A A will lock into each other and effect the coupling; and when the coupling of the two cars has been effected, the compression, which is now upon the spring G of each

car, will exert a tensional strain on each of the draw-bars A between the pivots B of each draw-bar aforesaid, and when the train starts, and the cars lag behind their original position with the draw-bars, the compression-bar H will retain the compression in the buffer-springs G, and consequently the tension upon the hooks of the draw-bars. This tension will be uniform and reliable. It may also be seen that when any great and sudden concussion takes place which cannot be counteracted by the buffer-springs G of each coupler, and before the said springs have given out all their resisting force, the shoulders S S upon the draw-bars A will come in contact with the end of a draw-bar, and compress the spring E, which will now act as an auxiliary buffer, and materially assist in lessening the destruction usually attending such concussions.

I do not claim the attachment of a buffer, as F, directly to the inner end of a draw-bar, as A. I use a separate and distinct bar, viz., the angular compression-bar H and cross-bar O, by which means I simplify and strengthen my buffer, and in using a spring of much greater strength than can be used without such compression-bar H and cross-bar O, so that it will easily resist the ordinary concussions from stopping and starting the train, and prevent the jolting and oscillation when at a high speed. My angular compression-bar H having an enlarged hub at its inner end, which embraces the enlarged head of pivot B, is well devised and constructed for this purpose.

The uncoupling of cars is effected by means of the ordinary lever and chain used for this purpose.

Having thus described my invention, I claim—

1. The angular compression-bar H, in combination with a hooked draw-bar, A, and the spring C, as set forth.

2. The angular compression-bar H, in combination with the buffer-bar F and spring G, substantially as set forth.

3. The cross-bar O, in combination with the sliding plate *p*, buffer-bar F, angular bar H, and spring G, substantially as set forth.

EDWARD MARSDEN LAW.

Witnesses:
HOLLAND BELFRY,
WILLIAM GILL.