A. MIDDLETON.

DRAW-BARS FOR RAILWAY CARS.

No. 183,958. Patented Oct. 31, 1876.

Fig. 1

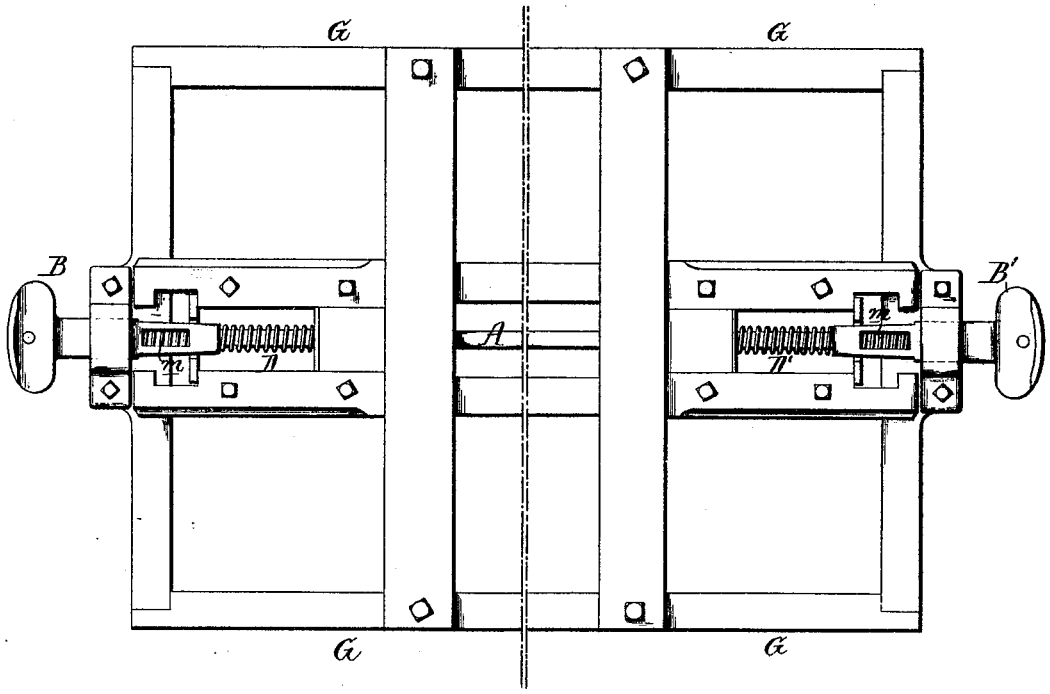


Fig. 2

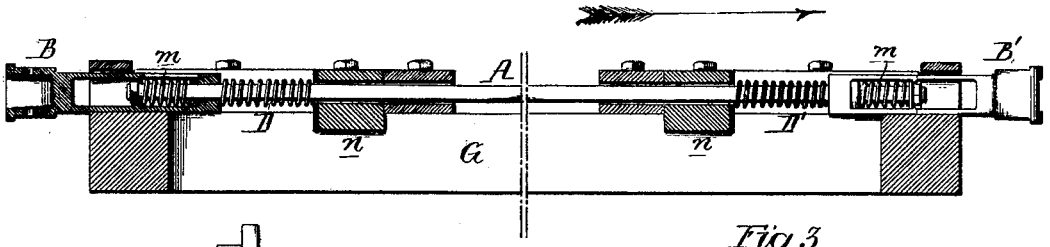


Fig. 4

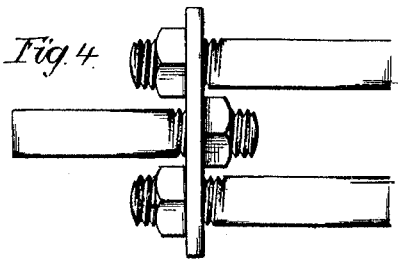
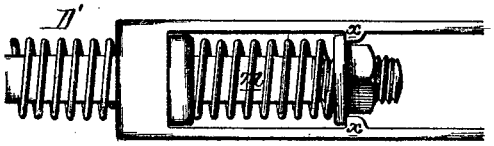


Fig. 3



Witnesses
Hermann Moessner
Harry Smith

Allen Middleton
by his Attorneys
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UNITED STATES PATENT OFFICE.

ALLEN MIDDLETON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN DRAW-BARS FOR RAILWAY-CARS.

Specification forming part of Letters Patent No. **183,958**, dated October 31, 1876; application filed September 18, 1876.

To all whom it may concern:

Be it known that I, ALLEN MIDDLETON, of Philadelphia, Pennsylvania, have invented certain Improvements in Draw-Bars, of which the following is a specification:

My invention relates to an improvement, fully described hereafter, in the draw-bar coupling for which Letters Patent No. 142,492 were granted to me on the 2d day of September, 1873.

In the accompanying drawing, Figure 1 is a plan view; Fig. 2, a vertical section of the frame of a railway-car with my improvement; Fig. 3, an enlarged view of part of Fig. 2, and Fig. 4 a modification of the draw-bar.

G is the ordinary frame of a car, and B B′ the bumper and coupling-heads, arranged to slide in guides on the frame in the usual manner. A is the draw-bar, one end of which passes into one bumper-head, and the other into the other bumper-head, as shown in Fig. 2, a spring, *m*, contained in a chamber or recess in each head intervening between the end of the said recess and a nut or other enlargement on the end of the bar. A bumper-spring, D, near each end of the car intervenes between the inner end of each bumper-head and a block, *n*, or other fixed object on the frame of the car.

In my former patent no springs *m m* were shown or described, the end of the recess in the bumper-head bearing directly against the nut or other enlargement on the end of the draw-bar when the bumpers were pulled outward, and the consequence of this was an abrupt shock in starting the car. The springs *m m*, however, form cushions which will yield and absorb these shocks, and permit one car to acquire a slight movement before the pulling effect is transmitted to the next car of the train. The springs *m m*, however, should be comparatively rigid, so that the lost motion in starting the car will not be more than an inch, or thereabout.

In carrying out my improvement I still retain the advantages described in my former patent, as regards the transmitting of the pulling force applied to the coupling-head at one end of the car to the opposite end of the same in starting a train, thereby relieving the car-frame from the excessive strain to which it must always be subjected when the pulling force is exerted on that end of the car where the pulling takes place. If, for instance, the coupling-head B′ be pulled on starting the train in the direction of the arrow, there will be a yielding of both springs *m m*, but not a like movement of both bumper-heads, for the tendency of the head B to move inward is resisted by the bumper-spring D at the rear of the car, while the spring D′ at the front end of the car presents no resistance to the outward movement of the head B′; hence the pulling force on this head in starting the car will be imparted to the rear of the frame instead of to the front, and this through an elastic medium; or, in other words, the car-frame will be subjected to a pushing force, which has a far less detrimental effect on the said frame than when the latter is subjected to the usual pulling strain.

It is immaterial what the character of the several springs may be, whether they be spiral springs, as shown, or elliptic springs or gum springs, provided they perform the duties described.

In place of a single draw-bar, A, there may be two bars, thereby obviating the necessity of bending a single bar to escape the king-bolts of the trucks.

It will be observed, on referring to Fig. 3, that there is an internal projection, *x*, in each of the heads B and B′ for bearing against the spring *m*, which aids the springs D in absorbing the shocks resulting from the meeting of the heads of adjoining cars.

I claim as my invention—

1. The combination of the coupling bar or bars A, the heads B and B′, springs *m m* and D D′, all being constructed for application to the car-frame, and for operating substantially in the manner described.

2. The combination of the bumper-head and its internal projection *x* with the draw-bar A and spring *m*.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALLEN MIDDLETON.

Witnesses:

HENRY HOWSON, Jr.,

HUBERT HOWSON.