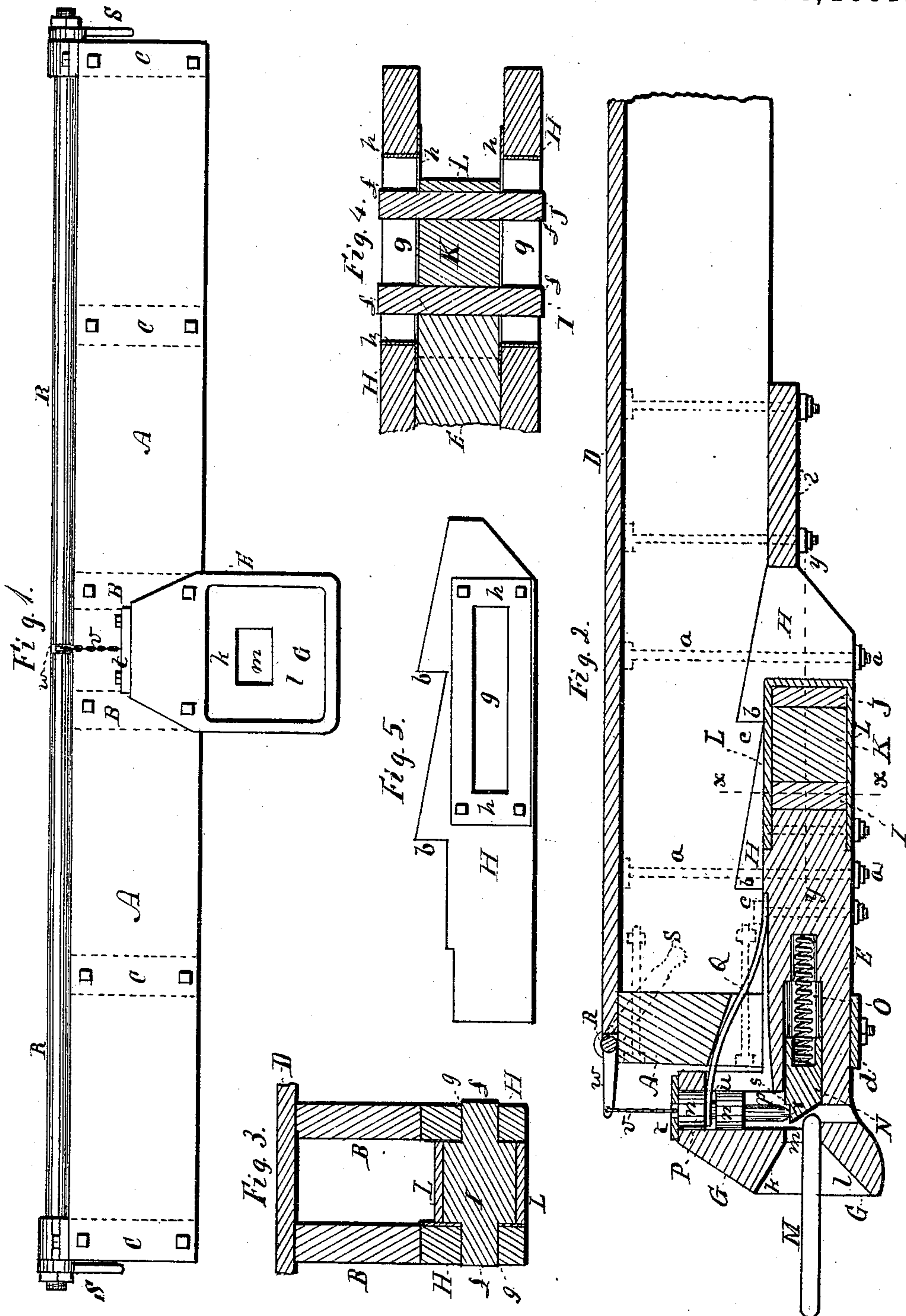


(No Model.)

E. S. CRAM.
CAR COUPLING.

No. 250,715.

Patented Dec. 13, 1881.



WITNESSES
L. C. ...
James Wright

By his Attorney,

INVENTOR,
Elisha S. Cram
J. S. Brown

UNITED STATES PATENT OFFICE.

ELISHA S. CRAM, OF LACONIA, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF
TO WILLIAM F. CHASE, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 250,715, dated December 13, 1881.

Application filed March 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, ELISHA S. CRAM, of Laconia, in the county of Belknap and State of New Hampshire, have invented an Improved Car-Coupling and Draw-Bar; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a front view of my improved car-coupling and draw-bar as applied to a platform-car; Fig. 2, a central longitudinal vertical section of the same; Fig. 3, a transverse vertical section in a plane indicated by the line *x x*, Fig. 2; Fig. 4, a horizontal section in a plane indicated by the line *y y*, Fig. 2; Fig. 5, view of a part detached.

Like letters designate corresponding parts in all the figures.

Let A represent the front sill of a car-platform; B B C C, sills running lengthwise of the car and framed into the front sill; D, the floor of the platform; E, the draw-bar, and G the bumper-head thereof.

First, in the construction of the draw-bar, two guide-bars or "draw-bar woods," H H, being secured to the under sides of the two middle sills, B B, of the platform, which are placed at the proper distance apart for the purpose, are the main guides and supports of the draw-bar E. These woods being subjected to much strain in pulling by the draw-bars in the train, I secure them to the sills B B, not merely by strong bolts *a a*, but I form the joining surfaces of the same and of the sills with an improved joint to increase the strength thereof. I form in the upper edge of each wood notches with abrupt shoulders *b b* at the rear terminations, as shown in Fig. 5, to fit corresponding reverse or counterpart notches, *c c*, with abrupt shoulders at the forward terminations in the under sides of the sills. The draw-bar slides between these woods, its front end being supported by a suitable iron strap or stirrup, *d*, Fig. 2, extending across beneath it and secured to the under side of the front sill, A. The rear end of the draw-bar is supported by two cross bars or blocks, I J, secured thereto, and having at their ends tenons or projections *f f*, which extend into and slide in horizontal mor-

tises *g g* in the respective draw-bar woods. The front block, I, is situated close to the rear end of the draw-bar, and the rear block, J, is situated several inches farther back, with a space between to contain an india-rubber block or equivalent spring, K. The blocks and spring are held in an iron yoke or doubled strap, L, extending around the top, rear end, and bottom of the block-space, and having its front ends secured to the rear end of the draw-bar. The mortises *g g* limit the extent of the movement of the blocks I J forward and backward, except toward each other by the compression of the intermediate spring, K, which is compressed by the front block, I, when the draw-bar is pushed backward, and by the rear block, J, when the draw-bar is drawn forward. Thus this single spring acts in place of two springs, and the whole construction is simple, cheap, and strong. The mortises *g g* may be lined at the ends, and the wood around the edges thereof by protecting-plates *h h*, of iron, portions of which are bent into the mortises at the ends thereof. The rear end of the draw-bar woods bear against a cross sill or bar, *i*, under the platform.

The mouth of the bumper-head G is specially formed for automatically receiving the coupling-links M, when held by the coupling of the adjacent car in a nearly horizontal position, even though the cars may differ considerably in height. The upper surface or roof, *k*, has a less inclination from the horizontal line than the lower surface or floor, *z*, as shown, while together they have sufficient to give all the requisite flare for the purpose. As the link is held in a horizontal position with my coupling by a counterbalancing spring-pressure, the lifting of the free end of the link requires very little force, and therefore the less the inclination necessary for the surface of the bumper-mouth as the link strikes the same in coupling the cars, whereas when the coupling-link strikes the upper surface of the bumper-mouth it has to overcome the increased resistance of the balancing-spring, and cannot have so great an inclination as the lower surface. The throat *m* of the bumper-head also is made about twice the thickness vertically of the coupling-link, rendered practicable by my improved coup-

ling, and thereby increasing the range of the link's position in which it can be caught and coupled.

With my present improved coupling I employ a sliding block, N, in the draw-bar, concave horizontally at its forward end, which also is inclined downward and backward from its upper edge, the said sliding block being pushed forward by a spring, O, substantially in the same way as in my Patent No. 89,202, dated April 20, 1869, and also a coupling-pin, P, with an enlarged part, *n*, above the pin proper, *p*, also forced down by a spring, Q, substantially as in the said Letters Patent.

In my present invention, also, I form a pin-seat, *r*, on the front end of the sliding block N, somewhat lower than the remainder of the upper surface thereof, thus producing an abrupt shoulder, *s*, at the rear of this seat; and the upper end of the coupling-pin, or of its enlarged part *n*, is held by a stop, *t*, placed across the socket or guideway of the coupling-pin in the draw-head, to limit the upward movement of the said coupling-pin, and this upward limit of the movement is such that it will just permit the lower end of the coupling-pin to rise and rest upon the pin-seat of the sliding block and allow the said block to spring forward till its shoulder *s* reaches the coupling-pin, and no farther, all as shown by full lines in Fig. 2.

Thus the coupling-pin may be raised without care, and thus both uncouple the two cars and set the coupling-pin in its raised position, ready to couple automatically whenever the coupling-link of a car is driven into the draw-head and made to push back the sliding block. At that moment the coupling-pin descends, impelled by its own weight and by the spring Q, and holds the coupling-link, as shown by dotted lines in Fig. 2. The inclined end of the sliding block, together with the force of the spring behind it, and the coupling-pin in the coupling-link, holds the said coupling-link in a nearly horizontal position, even when the other end thereof is detached from a car, so that it does not require raising by hand when two cars are brought together for coupling.

The spring Q may be a flat spring, as shown, and is held in the top of the draw-bar and em-

braces the coupling-pin by a groove, *u*, in the periphery thereof, thus not requiring any additional vertical room more than the coupling-pin itself requires. It is also concealed and shielded beneath the platform of the car. An opening at the back of the coupling-pin socket enables the spring to reach the same, and allows sufficient play for its up-and-down movement.

The coupling-pin may be raised directly by hand, taking hold of a chain, *v*, or cord, connecting-rod, or other equivalent, while the attendant is standing on the car-platform. It is also conveniently operated while the attendant is standing on the ground at either side of the car by the means shown in the drawings. The said chain or connecting-rod *v* is attached at its upper end to an arm, *w*, projecting from a rock-shaft, R, which extends along the width of the end of the platform, and is held in suitable bearings thereon. A lever or handle, S, is secured to this rock-shaft at each end, by depressing either of which the coupling-pin is raised.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The draw-bar woods or timbers H H, attached to parallel platform-sills above the same by notched joints, and provided with mortises *g g*, having linings *h h*, in which play the follower-blocks or cross-bars I J, substantially as and for the purpose herein specified.

2. The combination of the sliding block N, provided with the depressed or shouldered pin-seat *r* on its front end, and the coupling-pin P, with its enlarged part *n*, and top stop, *t*, substantially as and for the purpose herein specified.

3. The combination of the sliding block N, coupling-pin P, spring Q, rock-shaft R, with its connecting-chain *v*, and the side levers, S, substantially as and for the purpose herein specified.

The foregoing specification signed by me.

ELISHA S. CRAM.

Witnesses:

ERASTUS P. JEWELL,
JOHN F. COURTNEY.