(No Model.) 2 Sheets—Sheet 1.

E. LASHER.

CAR COUPLING.

No. 254,028. Patented Feb. 21, 1882.

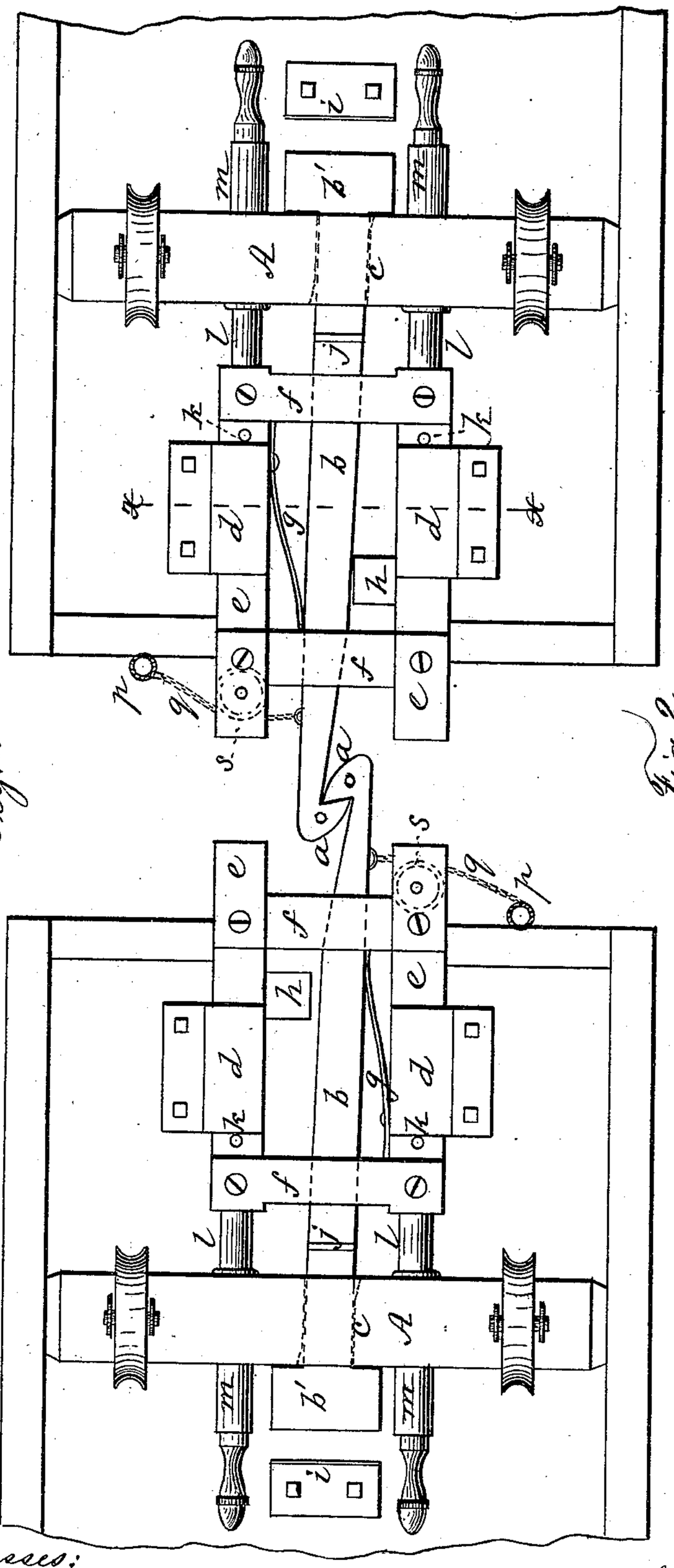

Fig. 1.

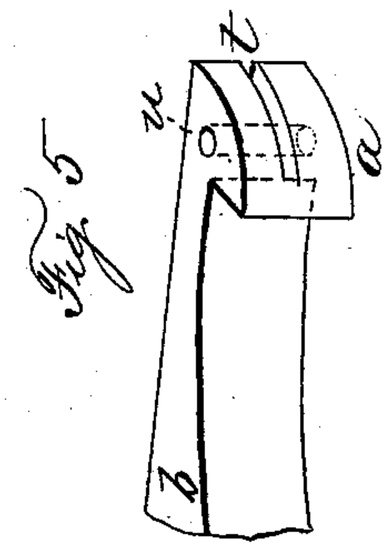

Fig. 5

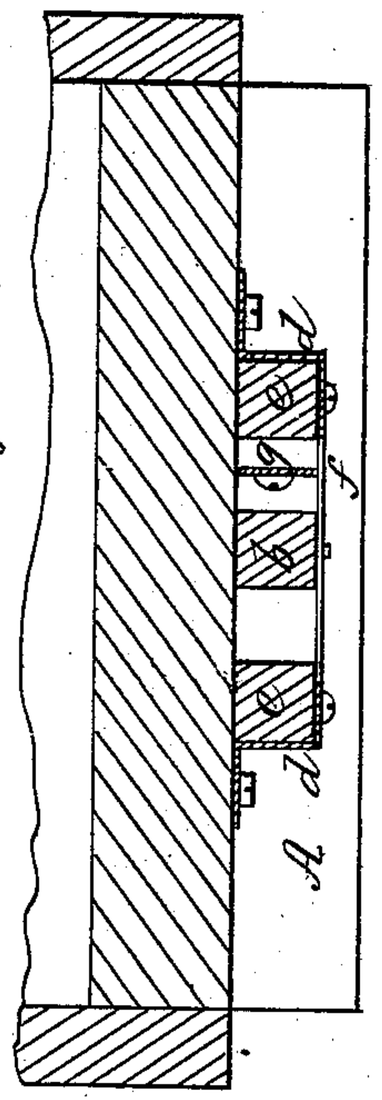

Fig. 2.

Witnesses:
Howell Battle,
Edmund Brodhag

Inventor:
Elias Lasher
by Johnson and Johnson
Attys

(No Model.) 2 Sheets—Sheet 2.

E. LASHER.

CAR COUPLING.

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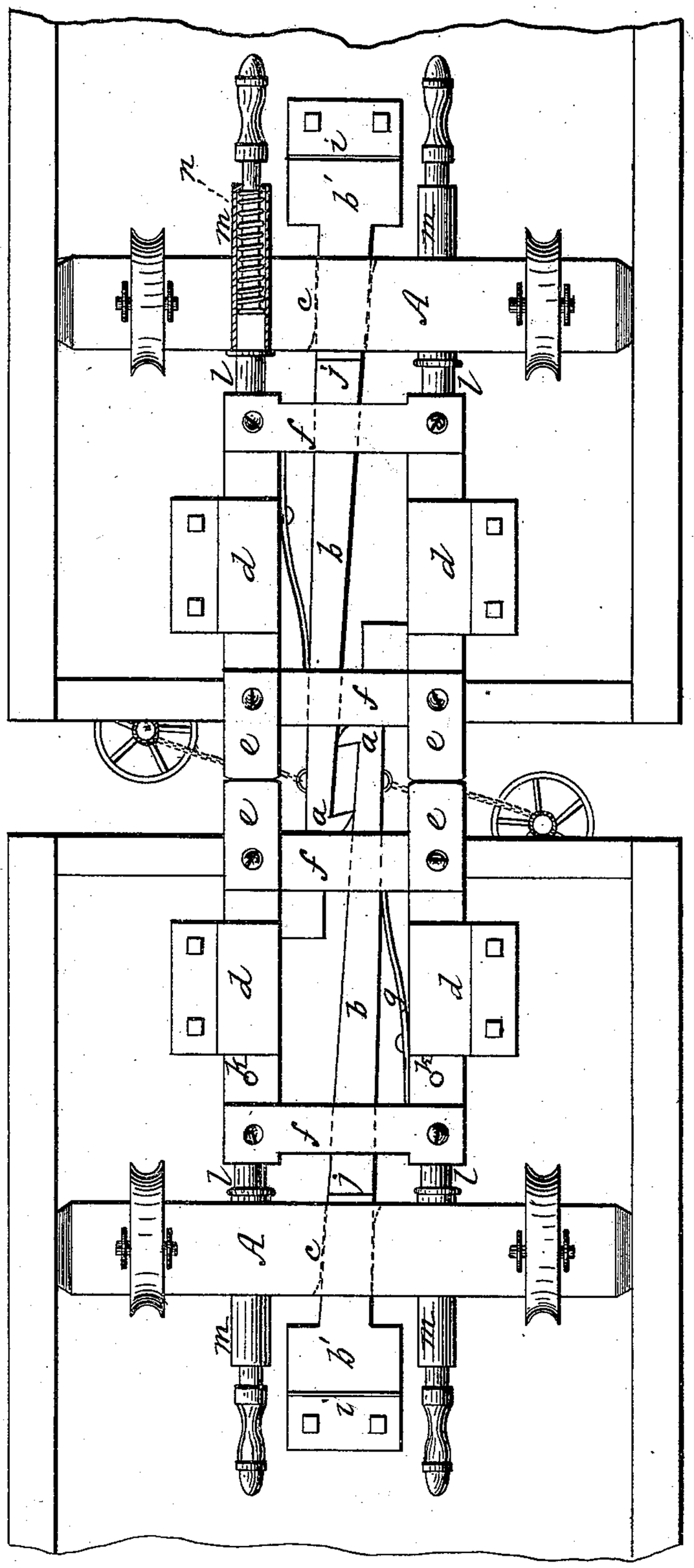

Fig. 3.

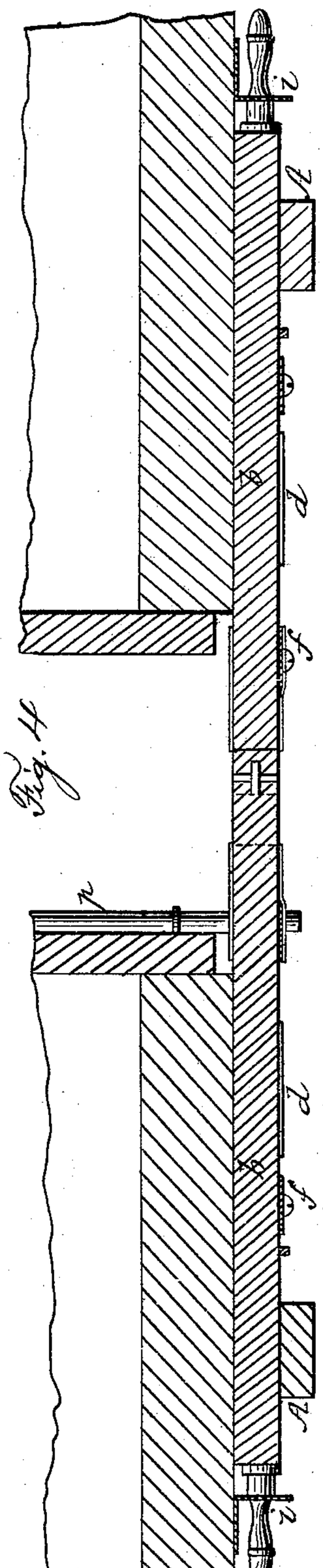

Fig. 4.

Witnesses:
Edmund Brodhag
Philip F. Larner

Inventor
Elias Lasher
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UNITED STATES PATENT OFFICE.

ELIAS LASHER, OF GERMANTOWN, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 254,028, dated February 21, 1882.

Application filed December 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, ELIAS LASHER, a citizen of the United States, residing at Germantown, in the county of Columbia and State of New York, have invented new and useful Improvements in Railway-Car Couplings, of which the following is a specification.

My invention relates to improvements in railroad-car couplings in which coupling-hooks are adapted to interlock horizontally by means of springs to render the coupling self-acting in connecting the cars. The hook-bars are arranged upon the flat bottom of the car and draw from unyielding connections with cross-timbers fixed to the bottom of the car. The hook end of each bar is supported by and arranged within a bumper-frame, but does not draw from said frame. The bumper-frame is secured within guides to the flat bottom of the car, and is held in its normal position to receive and relieve the concussion of the cars in coupling by means of cushioned pins arranged one on each side the hook-bar within tubular holders secured in the cross-timber. The bumper-frame is formed of side bars connected by cross-bars, and the cushioned pins are arranged to receive the direct action of the inner ends of the side bars. The inner ends of the hook-bars are each fitted within a mortise in the cross-timber, and each has a cross-head by which it draws against said timber. The side bars of the bumper-frame may be rigidly connected to the cross-bars; but I prefer a pivoting connection of said bars, so as to allow them to yield equally or unequally when the bumper-frames are in contact in slowing the speed of the train or in coupling the cars, and thus relieve the bumper-frames from angular strain and allow them to have such yielding action when the cars are closely coupled. The hook-bars operate with a limited non-drawing movement in starting the train, so that the cars are moved in succession, and not all at the same time. This slack in the hook-bars is obtained by moving them back in coupling the cars, so as to carry the cross-heads of the bars from the fixed cross-timbers, whereby the cross-heads of the hook-bars are brought against the cross-timbers in succession in each car in moving the train. The hook-bars are maintained in coupled position by laterally-acting springs, and the cars are uncoupled by vertical hand-wheel rods operated from the tops of the cars and connected by chains with the hook-bars. The hooks are adapted for use with the usual coupling link and pin.

Referring to the accompanying drawings, Figure 1 represents a bottom view, showing portions of two cars as coupled by my improved hook-coupling; Fig. 2, a vertical cross-section taken through the guides for the bumper-frame on the line *x x* of Fig. 1; Fig. 3, a bottom view, showing the positions of the hooks and the bumper-frames in coupling the cars; Fig. 4, a vertical longitudinal section, the hooks being coupled; and Fig. 5, one of the hooks, showing the slot and the perforation by which to adapt the hooks for use with a coupling link and pins.

Long hook-bars form the coupling device proper, one at each end of the car, arranged upon the flat bottom thereof, the hook parts *a* projecting from the ends, while the hook-bar *b*, being rectangular in cross-section, is fitted in a mortise, *c*, in a strong timber, A, secured across the bottom of the car. The inner end of the hook-bar has a cross-head, *b'*, at the inner side of the cross-timber A, against which said cross-head abuts, and which forms an unyielding draft-connection for the coupling, whereby the hooks draw direct from fixed bottom timbers of the car. This cross-draft timber is set far enough back from the end of the car to allow the hook end proper to be supported by and within a bumper-frame fitted in gaides *d d*, secured to the bottom of the car. This bumper-frame consists of two bars, *e e*, securely connected by cross-bars *f f* at their inner and outer ends, and it is adapted to slide within the guides *d d*, which may be right-angled plates, as shown. The side bars form the bumpers and project beyond the end of the car for that purpose, while the hook is supported in position between the bumper-bars upon the cross-bars *f f* and extends beyond the bumper-frame. The hooks are adapted to be coupled by a lateral action one upon the other, and their ends are beveled or curved, so that when brought together their beveled faces will meet and pass each other to the hooked position. The hook end of the bar for this purpose has a lateral movement, and the mor-

tise *c* in the fixed cross-timber, within which it is fitted, gives sufficient play to allow of such lateral movement to the extent required to couple and uncouple the hooks. A spring, *g*, on the inner side of one of the bumper-bars, bears upon and holds the hook-bar in position for coupling and to maintain such coupled position, by holding it against an unyielding projection, *h*, on the inner side of the other bumper-bar, the force of said spring being constantly exerted to hold the hook bar in position to safely maintain its coupled relation to the hook of the other car. As the hook draws directly by an unyielding connection with the car, provision is made for slack in the drawing action of the hook by adapting the latter for a free limited movement in its mortised draw-bar. For this purpose a stop, *i*, is secured to the car-bottom behind the cross-head end of the hook-bar, so as to limit the extent of the slack, which is made by forcing the bar back against said stop in the operation of coupling to carry the cross-head away from the fixed cross-bar. This provision for a limited movement of the hook-bar independent of its drawing action gives the advantage of avoiding the simultaneous starting of each car of the train by allowing each car to have a slight start in succession from the locomotive, and thereby avoids to a considerable degree the difficulty of moving long trains at the start. In starting the train the slack of the hook-bars is taken up in the starting of each car; but as such starting is not all at once throughout the train this provision for a slight independent movement of the hook-bars of each car enables the locomotive to move the train at once. The non-drawing movement of the hook-bars is only to the extent of the space between their cross-heads and the fixed cross-bar when the hook-bars are forced inward in being coupled. This inward movement of the hook-bars is effected by the inward movement of bumper-frames by its rear cross-bar, *f*, coming in contact with a pin or rib, *j*, on the hook-bar, carrying it back also against the stop *i*; but the bumper-frame in such movement strikes against the fixed cross-timber. The outward movement of the bumper-frame is limited by stops *k k* thereon coming against the fixed guides of said frame.

Cushioned pins *l l* are arranged in the cross-timber A in line with the side bars of the bumper-frame, against which said bars abut when driven back in coupling the cars, and by which said bumper-frame is forced out. The cushioned pins are secured within tubular holders *m m* fixed in said cross-timber, within which coiled springs *n* are placed, so as to constantly exert their force to keep said pins against the bumper-frame and allow them to be driven back within their holders so their front ends may be carried flush with the front side of said cross-timber.

The uncoupling of the hook-bars is effected by hand-wheel rods *p* secured to the ends of the car, their lower ends being connected to the hook ends by chains *q*, their upper ends having hand-wheels by which to turn them from the top of the car and to wind the chain upon said rod, and thus separate the hooks, and hold them separated, if desired, by means of a ratchet-wheel on the rod and a pawl on the top of the car catching into said ratchet-wheel, as is common in freight-cars. I prefer to have the chain pass over a pulley, *s*, in the bumper-bar, so as to give an easy action in uncoupling.

To adapt the hooks for use with a coupling link and pins, I form a horizontal slot, *t*, in the hooked head of each coupling-bar to receive the ends of the link, and a vertical perforation, *u*, in each hook-head to receive the coupling-pin to connect the link with the hook-bars.

I claim—

1. The combination, with the fixed cross-timber A, of the cushioned pins, *l l*, secured therein, the hook-bar *b b'*, also secured therein, the stop *i*, and the bumper-frame, the latter supporting said hook-bar and having a sliding movement over and independent of it, and the said hook-bar having a sliding movement within the bumper-frame and independent of it, substantially as described, for the purpose specified.

2. The combination, with the fixed cross-timber A, of the cushioned pins *l l*, secured therein, the hook-bars *b b'*, also secured therein, the stop *i*, and the bumper-frame, consisting of the side bars, *e e*, and the cross-bars *f f* pivoted together, whereby, although connected, each side bar is free to have a limited movement independent of the other against their cushioned pins, substantially as described, for the purpose specified.

3. The bumper-frame, consisting of the side bars, *e e*, and the under cross-bars, *f f*, in combination with the hook-bar, arranged between the side bars and supported upon the cross-bars, and the fixed mortised cross-timber A, supporting the cross-head end of said hook-bar and forming the draft-abutment therefor, substantially as herein set forth.

4. In combination, the bumper-frame having the stops *k k*, the fixed guides *d d*, the hooked cross-head bar having the rib *j*, the mortised cross-timber A, the separate cushioned pins *l l*, and the stop *i*, substantially as described, for the purpose specified.

5. In combination, the hooked cross-head bar *a b*, the fixed mortised cross-timber A, the bumper-frame *e f*, its guides *d d*, the springs *g g*, the cushioned pins *l l*, and the stop *i*, all constructed and arranged substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELIAS LASHER.

Witnesses:
A. E. H. JOHNSON,
J. W. HAMILTON JOHNSON.