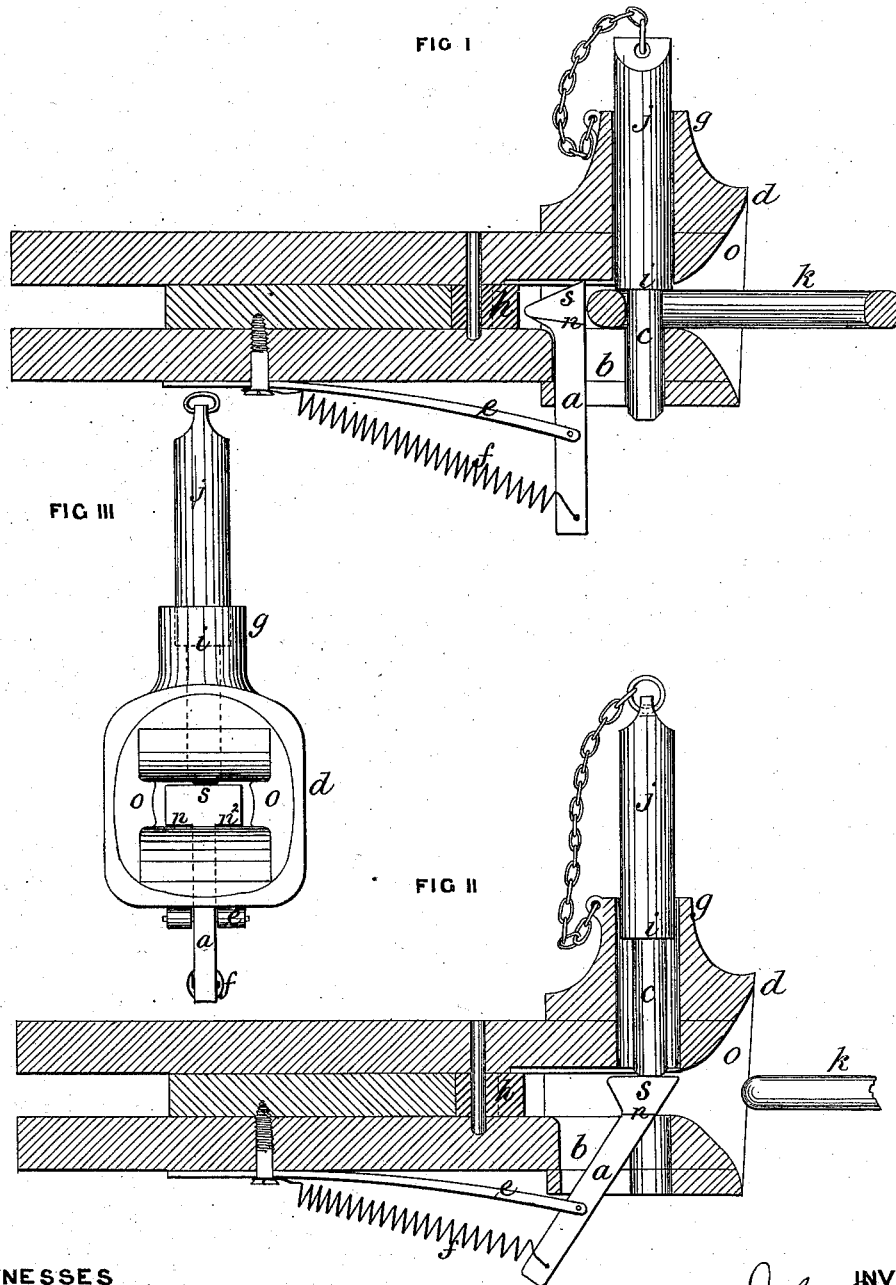


J. & A. E. CRANE.  
Car-Coupling.

No. 162,903.

Patented May 4, 1875.



WITNESSES  
*John C. Laing,*  
*J. A. Rutherford*

INVENTOR  
*John Crane -*  
*Abraham E. Crane*  
*By His Attorneys*  
*Johnson & Johnson*

# UNITED STATES PATENT OFFICE.

JOHN CRANE AND ABRAM E. CRANE, OF CANISTEO, NEW YORK.

## IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. 162,903, dated May 4, 1875; application filed March 29, 1875.

*To all whom it may concern:*

Be it known that we, JOHN CRANE and ABRAM EDGAR CRANE, of Canisteeo, in the county of Steuben and State of New York, have jointly invented certain new and useful Improvements in Self Car-Couplers; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The coupling device, as improved by us, is of the kind to effect the coupling of the cars automatically when brought together, the design being to render such coupling effective and advantageous in several important points, one of which is the employment of a stop or support for the coupling-pin pivoted to a horizontal spring-bar beneath the draw-head and combined with a second spring in such manner that the joint action of the spring will be such as to constantly force up and keep the pivoted stop against the under side of the draw-head opening, and in position to receive the action of the link, and to exert a force outward to bring the support directly beneath the opening for the pin to hold the latter in position for self-coupling.

In making the coupling, the pin support is moved back upon its spring-pivot against the joint action of the upward and outward action of the combined springs, and the stem of the pin-support passes, for this purpose, through a slot in the bottom of the draw-head, and is shouldered to form a stop to limit the outward movement of said support.

In the accompanying drawings, Figure 1 represents a vertical section of a draw-head of a car with our improved coupling applied thereto, the link being shown in coupled position; Fig. 2, a similar view, showing the coupling-pin in position for self-coupling, and Fig. 3 a front view of the same.

The draw-head *d* has the usual flaring opening *o*, and a vertical hole for the coupling-pin *e*, which fits in a guide, *g*, and is thereby held from displacement by the lateral vibrations of the cars. It is held in position for coupling the cars by a stop-head, *s*, arranged in

the throat of the draw-head, and maintained in position by a stem, *a*, projecting through a slot, *b*, in the lower side of the draw-head, and pivoted to the free end of a horizontal spring, *c*, secured to the bottom of the draw-head.

The function of this spring *c* is to force the stop-head up, and keep it against the under side of the draw-head throat. A second spring, *f*, connects with the lower end of the stem *a*, the function of which is to constantly exert its force to press the stop-head out under the pin-hole, and to hold it in position to support the coupling-pin, the point of which rests upon the stop in position to drop when the link strikes the face of the stop-head, and forces it back so as to clear the pin. The two springs thus combined, render the function of the pin-support effective and reliable. A spring-cushion, *h*, is arranged at the back of the stop-head to receive and break the coupling force against the stop-head, but such spring is not effective or reliable as to the proper function of the stop-head, and I have therefore combined for this purpose the joint action of the two outside springs to one of which the stop-head is pivoted.

It is very necessary to keep the link in a horizontal position so as to insure the proper coupling of the cars, and for this purpose we combine a shoulder, *i*, and a weight, *j*, with the pin *e*, so that the shoulder will rest directly upon the link *k* when coupled, and the weight *j* will act to overcome that of the outer end of the link, and thereby keep it straight.

It only requires that the pin be pressed or let fall upon the link to give this advantage. A chain secures the pin in position for use. The stop-head has shoulders *n n'* on each side of the stem *a*, and the latter, vibrating upon its pivot within the slot *b*, is limited in its outward movement by the resting of the shoulders upon the side of the draw-head opening, and thereby hold the stop-head in position beneath the pin.

We claim—

1. The combination, in a self-coupler for cars, of the coupling-pin *e*, and the link *k*, with the stop-head *s*, pivoted beneath the draw-head, substantially as and for the purpose set forth.

2. The combination with the stop-head *s*,

provided with an outwardly-projecting stem, *a*, of a horizontal spring, *e*, pivoted at its free end to said stem, and the spring *f* connected therewith below the stem-pivot, substantially as and for the purpose set forth.

3. The stop-head provided with shoulders *n* *n*<sup>2</sup>, and having stem *a*, in combination with draw-head having slot *b*, whereby the outward movement of the stop-head is limited to support the pin in coupling position, as set forth.

In testimony that we claim the foregoing we have affixed our signatures in the presence of two witnesses.

JOHN CRANE.  
ABRAM E. CRANE.

Witnesses:  
LAVASSA FIELD,  
C. W. ETZ.