W. H. WARD.

Car-Coupling.

No. 167,043. Patented Aug. 24, 1875.

FIG I

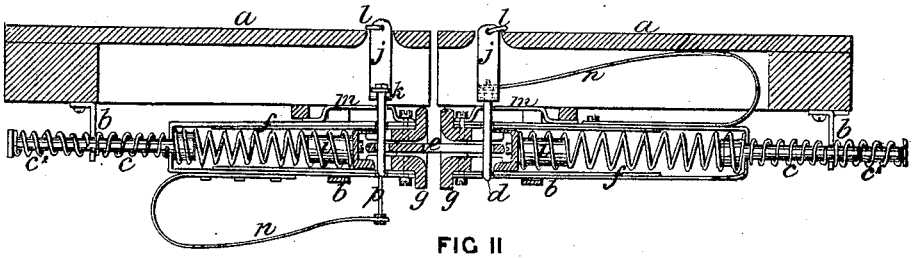


FIG II

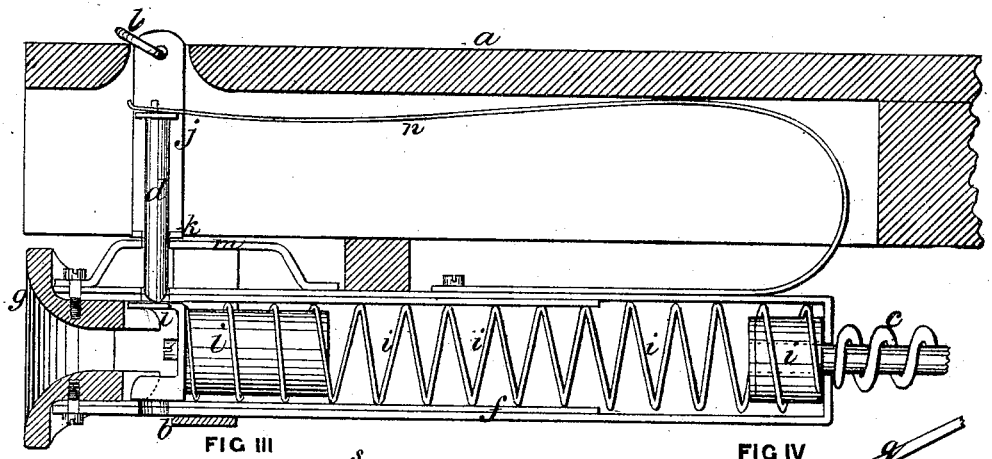


FIG III

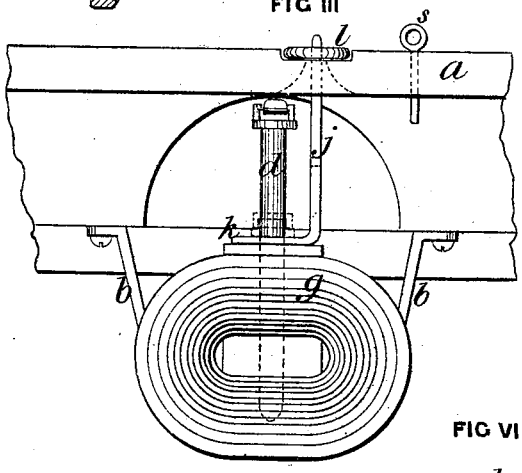


FIG IV

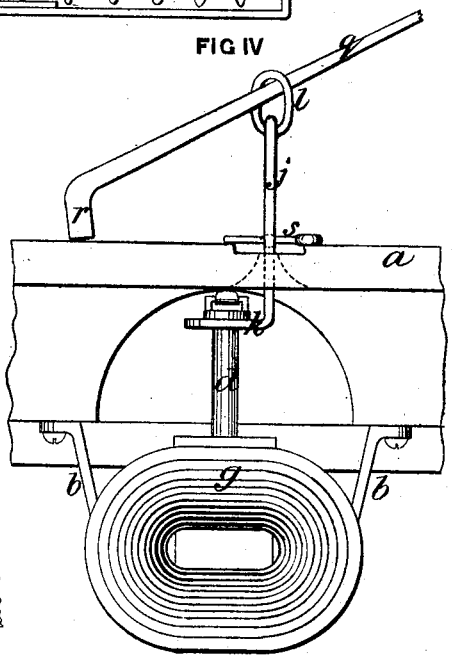


FIG V

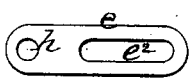
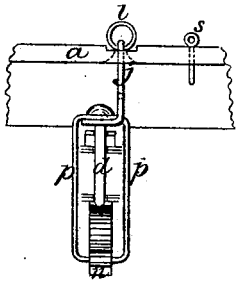


FIG VI



WITNESSES

John E Laing
J. Rutherford

INVENTOR

W. H. Ward

UNITED STATES PATENT OFFICE.

WILLIAM H. WARD, OF AUBURN, NEW YORK.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **167,043**, dated August 24, 1875; application filed March 4, 1875.

To all whom it may concern:

Be it known that I, WILLIAM HENRY WARD, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Self-Couplings for Railway-Cars; and I 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 drawing, and to the letters of reference marked thereon, which form a part of this specification.

My improved coupling is designed to couple cars with close connection, and avoid the usual dangerous gap between them. The draw-heads receive the concussion of the cars when coupling, and sustain the sudden pull or force of the engine by pull-and-push resisting-springs. The coupling-pins are carried by the draw-heads beneath the floor of the platform, and are combined with sliding lifters, which pass up through the platform, to allow the trainman to uncouple the cars, the said lifters being free to descend over their pins, and thus be out of the passage-way, whether the pins be coupled or uncoupled. The draw-heads may be provided with interior yielding link-resisters, and the link itself may have an eye at one end to receive the pin, and by which the link is held in position for self-coupling, the eye end of the link maintaining a fixed position with the pin; and the open end of the link, bearing back the resister, will insure the coupling-pin entering the link, and avoid the liability of not coupling, as with a link open at both ends, or the link may be provided with eyes at both ends. The coupling-pin is maintained in coupling position by resting upon the link-resister head, and it couples as the latter is moved back, uncovering the opening through which the pin passes. The coupling-pins are retained in vertical coupling positions by guides upon the draw-heads, and the limit of the vertical movement of the coupling-pins is governed by the connection of the sliding lifters with said pins and the springs which effect their descent. By this means, the coupling-pin cannot be displaced from a self-coupling position by the oscillations of the car, however great. The sliding pin lifters are of special advantage in enabling the cars to be uncoupled while in motion, or under strain, by means of a suitable lever passed through a ring at the top of said lifter with a resisting-point on the platform. One or both of the coupling-pins can be maintained in uncoupling positions by means of a pin passed through the lifter when raised and resting upon the platform.

The special features of novelty will be more specifically pointed out and embraced in the claims.

In the accompanying drawings, Figure 1 represents a vertical section of the platforms and coupling devices of connected cars; Fig. 2, an enlarged vertical section of the coupling device; Fig. 3, a front view, showing the coupling-pin raised and its lifter down; Fig. 4, a similar view, showing the manner of uncoupling the cars while the pins are under strain; Fig. 5, the eyed-link, and Fig. 6 shows the yoke-connection of the spring with the coupling-pin, when said spring is arranged beneath the draw-head.

The draw-heads *f* and their bumpers *g* are of any suitable construction, and secured to the under side of the platforms *a* by hangers *b*, or otherwise. The rear ends of the draw-heads may be provided with separate springs *c* c^2, one of which, *c*, receives and breaks the force of the concussion, and the other, c^2, relieves the sudden pulls or jerks upon the cars. The draw-heads are adapted for close connections of the cars, so that there is very little space between the platforms. The coupling-pins *d* are arranged to couple and uncouple beneath the platforms, and the link *e*, which I prefer to use, is of peculiar construction, being provided with an eye, *h*, Fig. 5, at one end, which is designed to remain coupled, to allow the open end of the link to couple with certainty. Spring-resisters *i* may be arranged between guides within the draw-heads, to receive the thrust of the coupling-link, and when the latter is open at both ends alike it is liable to couple at one end and not the other end, on account of the unequal yielding of the spring-resisters. The solid end, with the eye *h* in the link, avoids this objection, and allows the cars to couple close together. The pins *d* being wholly beneath the platforms, I have com-

bined with them sliding lifters *j*, through the lower angled ends *k* of which the pins pass freely, and whose upper ends are provided with rings *l*, which lie flush with the platforms, and by which the pins are lifted. Whether the pin be coupled or uncoupled, the lifter is down beneath the platform, as shown in Fig. 3, and in raising the pin the angled end *k* of the lifter lifts by the head of the pin.

By this construction and arrangement the platform-way is always free. The pins are held in uncoupled positions by resting upon the top of the link-resisters *i*, as shown in Fig. 2, and as these are forced back by the contact of the coupling-link, the pins are forced down into the link.

To hold the pins in uncoupled position, I provide the upper side of each draw-head with a guide, *m*, so that the pins cannot be displaced by the oscillations of the cars. The lifters *j* rest upon these pin-guides.

To insure the quick descent of the coupling-pins, they may be connected with the free ends of springs *n*, which may be either arranged above or beneath the draw-heads. When in the latter position, as shown in Fig. 1, the spring is connected with the upper end of the pin by a yoke, *p*, shown in Figs. 1 and 6, and which embraces the draw-head. There is ample play of the lifters *j*, both in their connection with the pins and with the platforms, to compensate for the yielding and pulling of the draw-heads. The sliding-pin lifters also afford facility for allowing the pins to be uncoupled, when under strain, by a lever, *q*, passed through the lifter-ring, and having a purchase-point, *r*, upon the platform, as shown in Fig. 4. The pin-lifters are also of advantage in allowing the pins to be held up, so that they cannot couple, by a pin, *s*, passed through the lifter and resting upon the platform, as shown in Fig. 4, or by a hook-chain fastened to the platform-railing, for hooking into the ring of the lifter for the same purpose.

I claim—

1. The lifter *j k*, for the coupling-pin *d*, having a sliding movement upon and independent of the latter, to allow it to descend to the lowest position beneath the platform out of the way, when the pin is elevated in position for coupling, as set forth.

2. The combination with the L-shaped lifter *j k*, having a sliding movement upon and independent of the pin *d*, of the guide *m* and the coupling-pin, whereby the lifter is supported in its lowest position when the pin is supported for coupling, as set forth.

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

WILLIAM H. WARD.

Witnesses:

A. E. H. JOHNSON,

J. W. HAMILTON JOHNSON.