H. F., J. M. & W. B. RICE.

Car-Coupling.

No. 162,769. Patented May 4, 1875.

Fig. 1

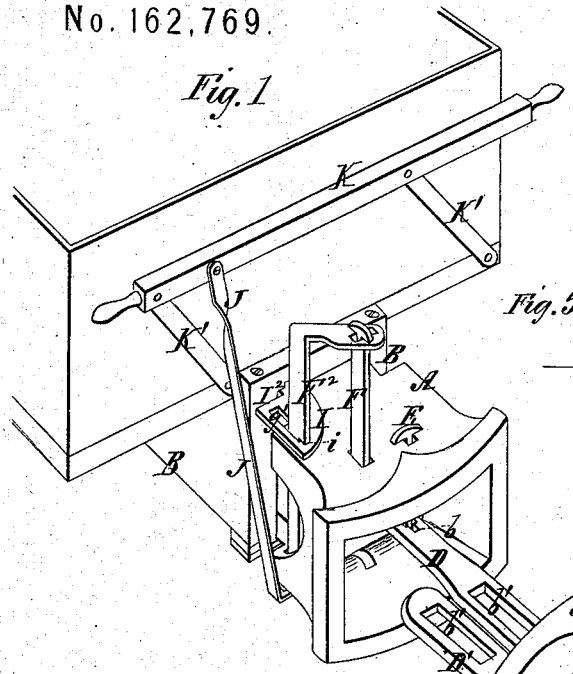


Fig. 5

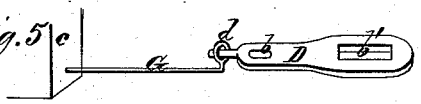


Fig. 4

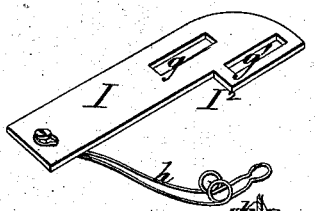


Fig. 3

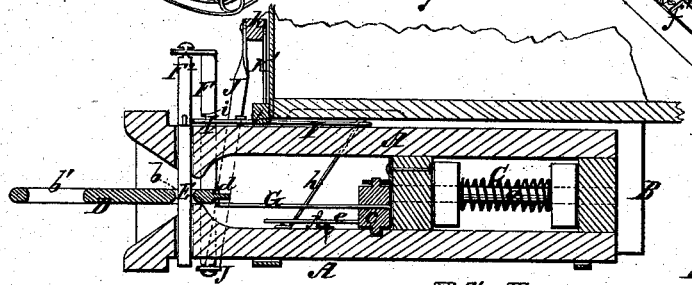
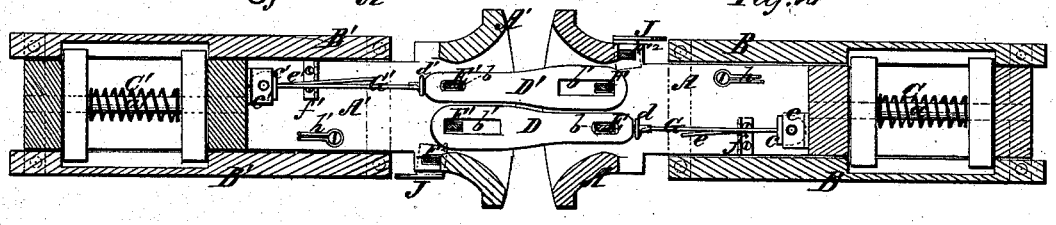


Fig. 2



Witnesses.

James Martin Jr.

J. N. Campbell

Inventors.

Henry F. Rice

James M. Rice

William B. Rice

by Mason, Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

HENRY F. RICE, JAMES M. RICE, AND WILLIAM B. RICE, OF DUBUQUE, IOWA.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **162,769**, dated May 4, 1875; application filed April 6, 1875.

To all whom it may concern:

Be it known that we, HENRY F. RICE, JAMES M. RICE, and WILLIAM B. RICE, of Dubuque, county of Dubuque and State of Iowa, have invented a new and useful Improvement in Car-Couplings; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of our improved coupling, the guide or case of one of the draw-heads being removed in order to show the parts more clearly, and the two draw-heads being apart. Fig. 2 is a horizontal section of the two draw-heads brought together and fastened by the coupling-pins. Fig. 3 is a vertical section of one of the draw-heads, and the coupling link and pin. Fig. 4 is a perspective view of a device for holding up the coupling-pins until the draw-heads are in proper coupling relation to one another, and then allowing them to fall and pass through the link. Fig. 5 is a perspective view of one of the links and its support.

The nature of our invention consists, first, in a spring supported at one end, and having a horizontal eye formed on its other end, and so applied within the draw-head that it receives the inner end of the coupling-link, and supports this link in a horizontal position while the cars are being coupled together. By this part of our invention the coupling-links are held in proper coupling position, and allowed to vibrate in any direction required when the cars are running upon the track. It consists, second, in two tapering links, perforated at each of their ends to receive coupling-pins, and constructed to lie alongside one another, in combination with two pins on each draw-head, one set of said pins being the ordinary hand-pins, and the other set being such as are held up by slides, and automatically caused to descend by the draw-heads striking one another. By this part of our invention the draw-heads can be brought close together, and the cars thus rendered more safe at the platforms, and prevented from swinging off to the right or left to too great an extent, and at the same time a more safe, secure, and strong coupling is provided, one which avoids the necessity of risking life by going between the draw-heads to couple and uncouple the cars, and yet may be used in the same manner as ordinary couplings by bringing the free ends of the perforated links into the draw-heads, and inserting hand coupling-pins through the same, instead of automatic pins. It consists, third, in slides constructed with slots for confining-screws, and slots for the coupling-pins, and with an angular shoulder, in combination with notched bars of the automatic coupling-pin, the sliding draw-head, and the guide or case of the draw-head. By this combination the coupling-pin can be held up and caused to drop into its place, and the expense of constructing the coupler to effect this result greatly reduced, and at the same time complication by a number of parts is avoided. It consists, fourth, in a parallel-moving lifting-bar, in combination with the coupling-pins, which are released automatically, as hereinafter described.

To enable others skilled in the art to make and use our invention, we will proceed to describe it.

A A′ represent two draw-heads, constructed just alike. These draw-heads are fitted to slide loosely in guiding-supports B B′, against buffers of bumper-springs C C′, said buffers and springs being, as usual, upon rods *a a′* of the draw-heads. D D′ are coupling links, having oblong slots *b b′* in each of their ends. These links are made tapering, or wider at one end than at the other, and are so used that the broadest portion of one lies alongside the narrowest portion of the other, as shown in Fig. 2. This construction admits of both links entering the mouths of the draw-heads without requiring said mouths to be greatly enlarged. E E′ are hand coupling-pins, and F F′ are coupling-pins which are to be released and lowered automatically.

G G′ are supports for the inner ends of the links to rest upon when inserted into the draw-heads and confined by the hand coupling-pins. These supports are, respectively, made of a spring bar or rod, one end of which is fastened to an adjustable block, *c* or *c′*, arranged at the back of the jaws of the draw-head. The front end of this rod is bent up or down at right angles, and formed into a circular eye, *d* or *d′*, into which a cylindrical stem on the respect-

ive coupling-links enters, as shown. The normal condition of these supports is horizontal and parallel with the axis of the draw-bar, and, therefore, the coupling-links will be kept by them horizontal and parallel when the cars are being coupled together and are not in motion; but if it is desired to have these bars stand oblique to the axis of the draw-bar for any purpose, this can be secured by turning the blocks *c c'* by means of arms *e e'* of said blocks, and securing said arms in notched plates *f f'*, attached to the bottom of the draw-bars. The supports G G' will, by reason of their elasticity, allow the coupling-links to vibrate laterally and vertically, or universally, as the cars require when in motion upon the track, and yet will hold the links in proper position for entering the draw-heads when the operation of coupling one car to another is to be performed. The coupling-pins F F^1, which are to be operated after the hand coupling-pins E E' are properly inserted through one end of the links, and the free end of the said links inserted into the mouths of the draw-heads, are connected to vertically-moving angular bars F^2 F^3, which are notched at *i i'*, and fitted in guides of the draw-head, and passed through sliding plates I I^1, arranged on top of the draw-heads. The said plates I I^1 have oblong slots *g g'* cut through them. The bars F^2 F^3 play through the slots *g'*, and fastening-screws through the slots *g*. I^2 is an angular shoulder formed on each of the plates I I^1, and extending out laterally beyond the sides of the respective guiding-supports B B', while the narrower portions of the plates pass between the top pieces of the guiding-supports and the tops of the draw-bars, and are connected to backward-thrusting springs *h h'*, which force the plates under the shoulders *i i'* of the bars when said pins are up out of the links. J J are bars for lifting the pins F F^1. These bars J J are, respectively, connected to a parallel-moving hand-rod, K, which is connected to the car by the two links K' K'. By moving this bar K, and another like it on the other car, laterally, the bars J J and the bars F^2 F^3, to which the pins F F^1 are attached, are raised with the pins, and the cars uncoupled.

From the foregoing description it will be seen that, after the links are adjusted horizontally upon their supports G G', and the hand coupling-pins E E' are inserted, and the coupling-pins F F^1 raised, it is only necessary to bump the draw-heads together in order to have the pins F F^1 fall through the links, for the bumping of the draw-heads causes the angular shoulder I^2 of the plates I I^1 to bear against the guiding-supports of the draw-heads while the draw-heads are sliding back, and this action causes the plates to slide forward from under the shoulder of the pins, and allow the pins to fall by their gravity through the links D D'.

What we claim is—

1. The spring support and guide G, in combination with the draw-bar A, substantially as and for the purpose described.

2. The spring support and guide G, attached to an adjusting-block, *c*, substantially as described.

3. The slide I, for holding up the coupling-pin F, connected to a spring-rod, *h*, and made with an angular shoulder, I^2, and slots *g g'*, in combination with the vertically-sliding notched bar F^2 of the coupling-pin F, and with the draw-heads, substantially as described.

4. The combination of the laterally-movable bar K, swinging links K' K', rod J, bar F^2, coupling-pin F, and slide I, substantially as and for the purpose described.

Witness our hands in the matter of our application for a patent on an improved railroad-car coupling.

HENRY F. RICE.
JAMES MERRIT RICE.
WILLIAM B. RICE.

Witnesses:
J. C. LONGUEVILLE,
MAURICE FLYNN.

Witnesses for WILLIAM B. RICE:
J. N. CAMPBELL,
JAMES MARTIN, Jr.