2 Sheets—Sheet 1.

R. GROVE.

CAR-COUPLINGS.

No. 194,301. Patented Aug. 21, 1877.

Fig. 1.

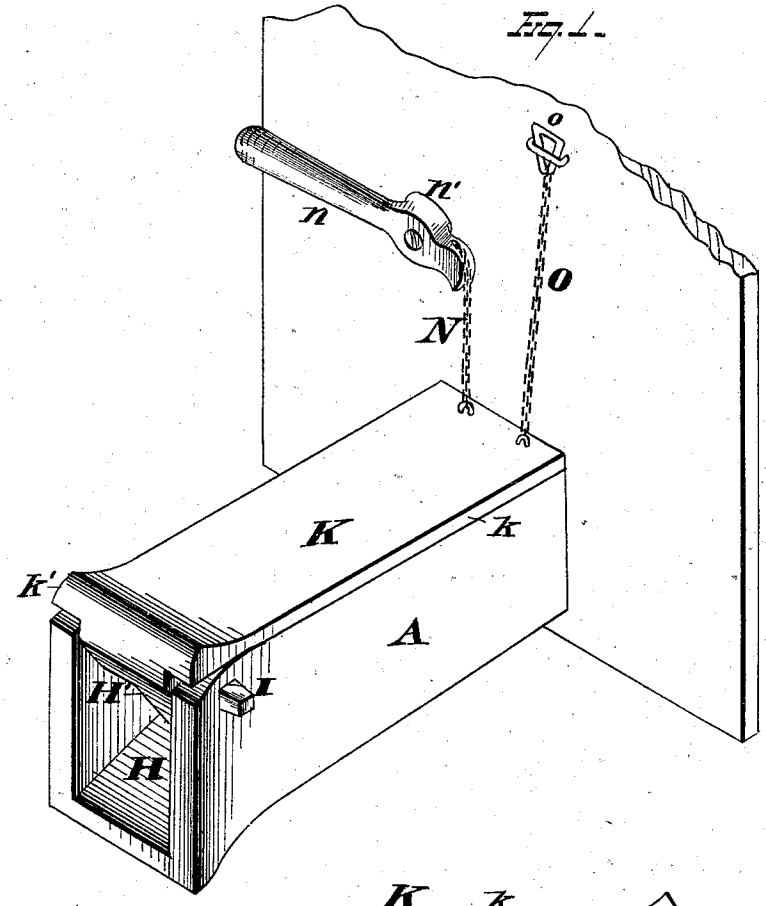
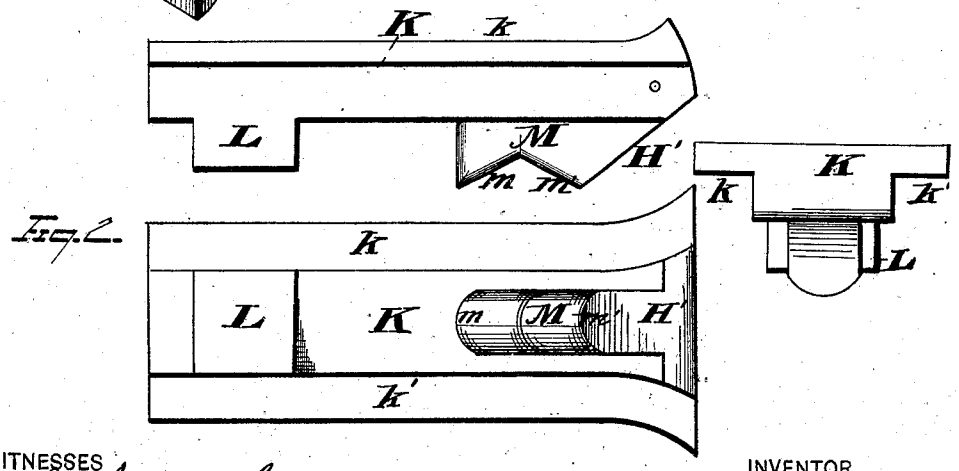


Fig. 2.



WITNESSES

Ed. L. Nottingham

A. M. Bright

INVENTOR

Richard Grove.

By Leggett & Leggett,

ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets—Sheet 2.

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Fig. 3.

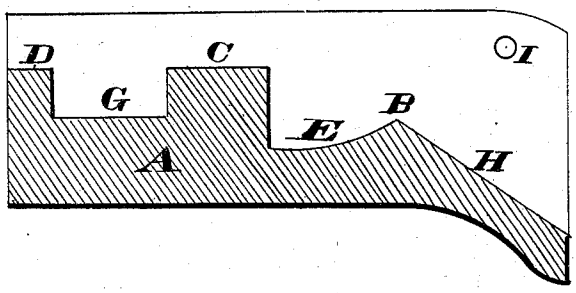
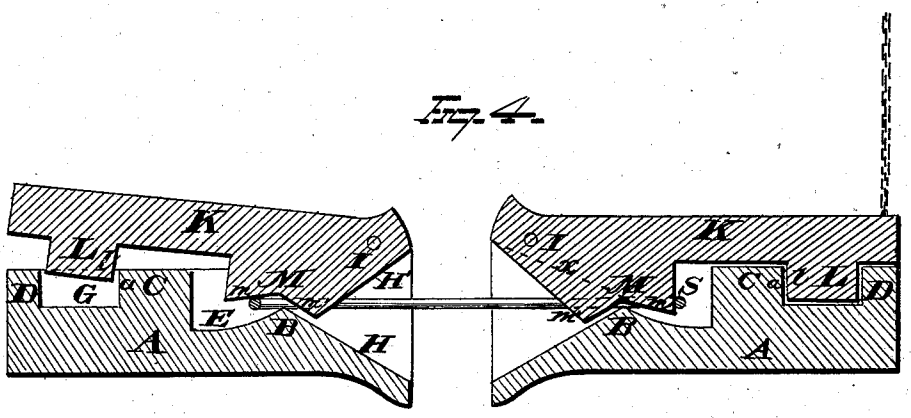


Fig. 4.



WITNESSES

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A. W. Bright

INVENTOR

Richard Grove.

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UNITED STATES PATENT OFFICE.

RICHARD GROVE, OF NORTH LIMA, OHIO.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **194,301**, dated August 21, 1877; application filed April 19, 1877.

To all whom it may concern:

Be it known that I, RICHARD GROVE, of North Lima, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Railway-Car Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to railway car couplings; and consists in the parts and combinations, as hereinafter specified and claimed.

In the drawing, Figure 1 represents a perspective view of a car-coupling device embodying my invention. Fig. 2 represents a side, end, and bottom view of the connecting-link holder of the draw-head. Fig. 3 is a cross-section of the draw-head with link-holder detached. Fig. 4 represents the connecting-link as held by one draw-head, and in the act of entering the other draw-head.

In Fig. 1, my device is represented as attached to a car—a freight-car, for instance. The draw-head A is secured to the car in any effectual and suitable manner. It is formed with a flaring mouth, and provided with the projections B, C, and D, thus forming the depressions E and G and the inclined plane H. To said draw-head at I is hinged or pivoted the link-holder K, which is provided with the projections L and M. Said holder is also formed with the projecting sides *k k'*, which latter rest on top of the draw-head. The projection M is cut off or beveled to form the inclined plane H', to correspond to the opposite inclined plane H. Said projection M is constructed so as to form the inclined sides *m m'*, for the purpose of facilitating the entrance of the connecting-link, as will be hereinafter described.

To the free end of the link-holder, on its upper side, are attached the chain, chains, or cords, by which it is lifted to permit the unlocking of the coupling or connecting link. The said holder may be hinged to the draw-head in any suitable manner, to permit a free movement of the holder.

When the link-holder K is in its closed position its projection M rests on the projection B of the draw-head, thus relieving the pins or rod, or equivalent device, by which the holder is hinged to the draw-head.

The projection L, which fits into the depression G, may properly be called the locking-bolt, as its side *l* bears against the adjacent side *a* of the projection C when a pulling power is exerted by the connecting-link. The several projections and depressions are so located as to fit easily into each other, and the projection L and depression G are so placed that when any pull is exerted by the link the side *l* will press against the side *a* of the projection C, and thus relieve the hinge I from any pressure.

If the hinge is constructed of a rod which passes through openings in the head and holder, these openings are preferably made larger than the cross-section of the rod, so as to allow a free movement of the parts, as well as to obviate any pressure on the rod.

N and O represent chains connected with the free ends of the link-holder, by which the same may be raised, and thus permit the coupling-link to be withdrawn. Chain N is connected with a lever, *n*, pivoted at *n'*, which may be operated from the platform of the car, while chain O may be operated by the handle *o* from the top of the car. The latter is specially applicable to freight-cars, but the former may also be employed on the same.

The operation of the device is as follows: As the car approaches the one to which it is to be coupled, its coupling or connecting link strikes the inclined plane H of the funnel-shaped or flaring mouth of the draw-head, which flaring mouth is made sufficiently large so that the free end of the coupling-pin, however much it may sag, shall always strike and ride upon said inclined plane H. When the free end of the connecting-link has reached the top of the inclined plane H, having passed between it and the inclined plane *m'* of the projection M, it strikes the inclined plane *m* and lifts the free end of the link-holder K to a height sufficient to allow the end of the link to pass beyond the projection M. The moment this is done the holder K returns to its original position, so that the link is retained in the space S behind the projection M, by

means of the projection L, which has dropped into its cavity or depression G. As the holder is pivoted at I, above the line of direction of the pull that may be exerted by the coupling-link, any pull exerted by said link on the projection M only causes the projection L to remain more securely in its position, and thus retain the link in place.

It is evident that since the link rests on the projection B on both sides of the projection M, it cannot rest on the bottom of E, and, therefore, cannot pass under the projection M.

It should also be further observed that the depression E is made of such a depth and that the projection M extends into the same for such a distance as to preclude the possibility of the link, however elevated or moved at its free end, from passing under the said projection, and thus become disengaged therefrom. If the link is forced inward horizontally it will abut against the projection C. If sufficiently depressed at one end it may lift the holder K to some extent, if forced inward; but the moment it recedes the holder will fall back to its original position and hold the link in place.

When it is desired to release the link, it is only necessary to lift the free end of the holder K by means of the chains before described, whereby the projection M is sufficiently raised or elevated above the projection B to allow the link to pass between the same, and be thus withdrawn.

In place of the chain any other device to lift the holder may be employed.

The projection D serves as a stop to prevent the link-holder from being forced inwardly, and is relatively so placed as to relieve the pivot or hinge I from any strain.

The body of the link-holder is made of a sufficient height or width to serve effectually the purpose of a guide, so as always to insure the return of the holder to its proper position when elevated.

If desired, the projection M may be formed as indicated by the dotted line *x* in Fig. 4; but I prefer the construction previously described.

What I claim is—

1. The combination of the draw-head A, provided with respective depressions E and G, with the link-holder K, pivoted or hinged to the draw-head at I, and provided with projections L and M, substantially as described.

2. The combination of the draw-head A, provided with depressions E and G, and inclined plane H, with the link-holder K, pivoted at I to the draw-head, and provided with projections L and M, the latter formed with the inclined surface *m m'*, and inclined plane H', substantially as and for the purpose described.

3. The combination, with a draw-head provided with projection C, formed between the depressions E and G, of a link-holder, pivoted or hinged to the front of the draw-head, and provided with the rear projection L, the same being constructed to relieve the said hinge or pivot of all strain caused by the action of the coupling-link, substantially as and for the purpose described.

4. The combination of a draw-head, provided with depression G, angular projection B, and depression E, with the link-holder K, pivoted to the draw-head, and provided with projections L and M, the latter extending to such a depth into the depression E as to prevent the coupling-link from passing under the same when the holder is in its closed position, substantially as described.

5. The combination, with the draw-head A, provided with respective depressions E and G, and the link-holder K, pivoted or hinged to the draw-head at I, and provided with projections L and M, in combination with respective chains or cords and suitable operating mechanism, whereby the said link-holder may be disengaged from its coupling-link by one standing on either the top or the platform of a car, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD GROVE.

Witnesses:

FRANCIS TOUMEY,

W. E. DONNELLY.