N. N. SPAFFORD.

Car-Coupling.

No. 167,278. Patented Aug. 31, 1875.

Fig. 1.

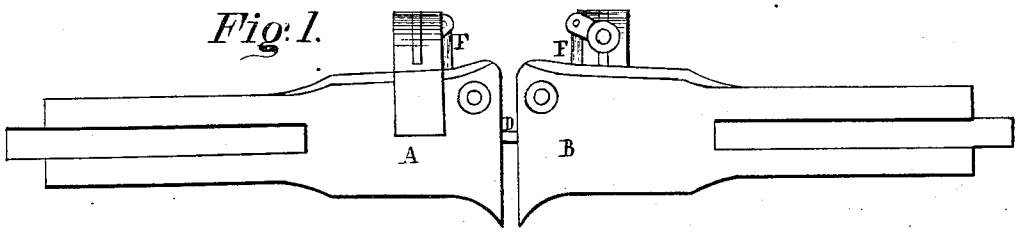


Fig. 2.

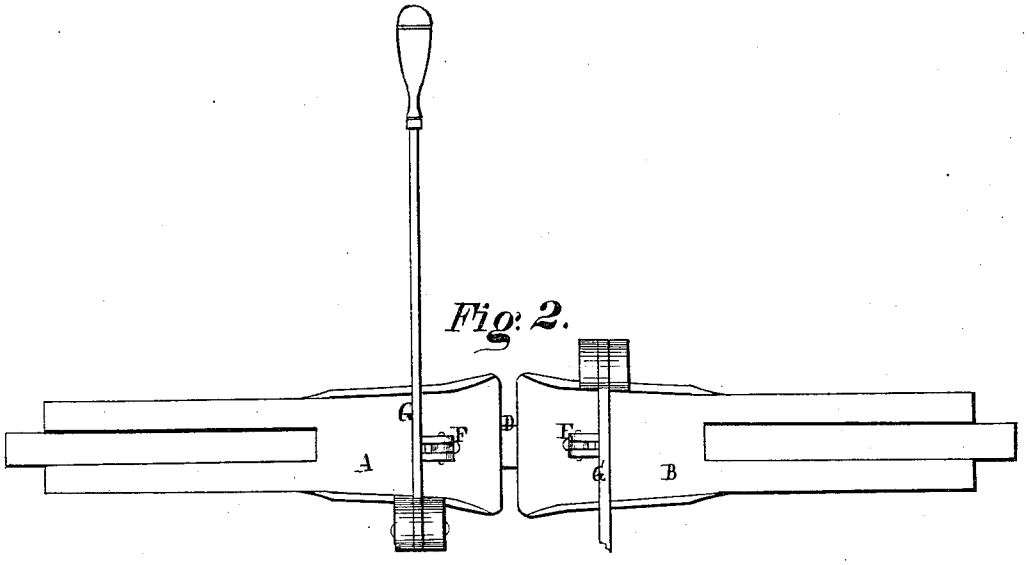


Fig. 4.

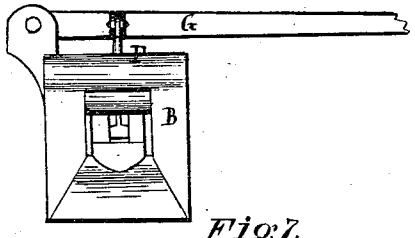


Fig. 3.

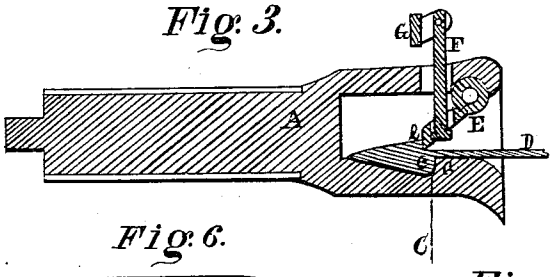


Fig. 6.

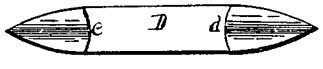


Fig. 5.

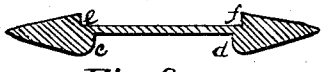


Fig. 7.

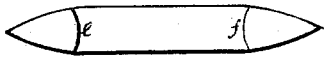
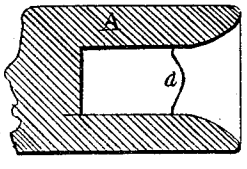


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

NOAH N. SPAFFORD, OF STRONGSVILLE, OHIO.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **167,278**, dated August 31, 1875; application filed November 24, 1873.

To all whom it may concern:

Be it known that I, NOAH N. SPAFFORD, of Strongsville, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Railway-Car Coupling, of which the following is a full, clear, and complete description, reference being had to the accompanying drawings making part of the same.

This invention is a car-coupling, and which consists of a solid link provided with shoulders, whereby the link is secured in the buffer-heads and prevented from being pulled out while in ordinary use, but which link becomes disengaged from the buffer-heads in the event the cars should run from off the rails, or other unusual occurrence, the construction and operation of which are as follows:

Figure 1 is a side view of the coupling. Fig. 2 is a plan view. Fig. 3 is a vertical longitudinal section. Fig. 4 is an end view. Figs. 5, 6, 7, and 8 are detached views of the link. Fig. 8 is a detached view of a buffer-head.

Like letters of reference refer to like parts in the several views.

A B are the buffer-heads, which are or may be of the usual shape, and secured to the cars in any appropriate manner. In the throat of each buffer-head, at the dotted line C, Fig. 3, is formed a shoulder, *a*, the side of which is concaved or bayed, as shown in Fig. 8, the object of which will presently be shown. D, Figs. 1 and 2, is the link, detached views of which are shown in Figs. 5, 6, and 7. The shoulders *c d*, Fig. 5, on the under side of the link, are closer together than are the shoulders *e f* on the upper side. Said shoulders are also rounded, so as to conform to the concave of the shoulders *a* in the throats of the buffer-heads. The two shoulders, thus fitting together, form a kind of ball-and-socket joint, allowing the link a free and easy lateral and vertical movement in the head. In the upper side of each of the throats is pivoted a pawl, E, Fig. 3, the lower end of which extends back into the throat so far as to engage the shoulders *e f*. Said shoulders *e f* are also made rounded for a similar purpose, for which the shoulders *c d* are rounded. F, Fig. 3, is a pin, the lower end of which is attached to the pawl E, whereas the upper end is attached to the lever G whereby the pin is lifted for the purpose of disengaging the pawl from the link for uncoupling the cars.

The practical operation of the coupling is thus: The link is inserted in the head, as shown in Fig. 3, in which it will be seen that the shoulder *c* of the link engages the shoulder *a* of the head, and that the end of the pawl engages the shoulder *e* of the link. The link is retained in a horizontal position, so that it may readily enter the buffer of the next car, by the weight of the pin, lever, and pawl, which rest upon the end of the link back from the shoulder *a*, said shoulder serving as a fulcrum on which the link rests, the longer end projecting from the head, being counterbalanced by the weight of the pin, lever, and pawl resting upon the shorter end on the opposite side of the shoulder, and that without in any degree embarrassing the free movement of the link.

The end of the link thus secured in the buffer-head cannot be withdrawn therefrom by a direct draft upon it, it being securely retained by the pawl and shoulder. On lifting the pawl by means of the pin and lever, the link is readily withdrawn for uncoupling the cars. Because of the flat character of the link it will, on being twisted or turned edgewise in the head, push upward the pawl, and, in consequence of the rounded shape of its shoulders, it becomes thereby readily disengaged from the head without any personal lifting of the lever; hence, should a car receive any violent and unusual strain—as, for instance, being thrown from the rails—it would become uncoupled from the train, and thereby save it from danger or accident.

What I claim as my invention, and desire to secure by Letters Patent, is—

The link D, with shoulders *e f* above, and *c d* below, curved and rounded, in combination with fulcrum-bearing *a* of a draw-head, having a shoulder curved and hollowed to correspond with the shoulder of the link, pawl E, pin F, and lever G, substantially as and for the purpose described.

NOAH N. SPAFFORD.

Witnesses:

W. H. BURRIDGE,

S. C. SHEPARD.