

L. W. POWLS.
Car-Couplings.

No. 150,974.

Patented May 19, 1874.

Fig. 1.

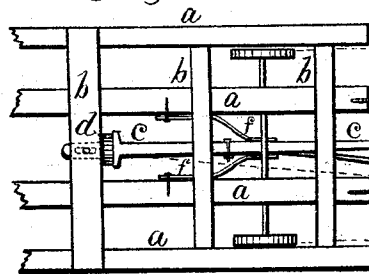
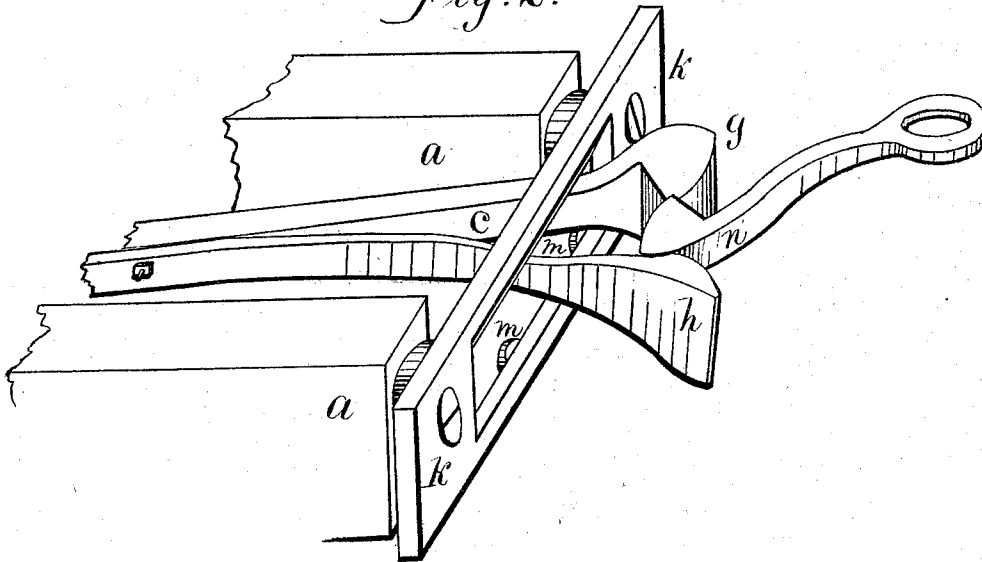


Fig. 2.



Witnesses.
R. E. Orrig.
Chas. P. Fink.

Levi W. Powls,
Inventor.
Thomas G. Orrig, Atty.

UNITED STATES PATENT OFFICE.

LEVI W. POWLS, OF MITCHELLVILLE, IOWA, ASSIGNOR OF ONE-HALF HIS
RIGHT TO WILLIAM H. HALL, JR., OF SAME PLACE.

IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. **150,974**, dated May 19, 1874; application filed
September 25, 1873.

To all whom it may concern:

Be it known that I, LEVI W. POWLS, of Mitchellville, in the county of Polk and State of Iowa, have invented an Improvement for Railroads, of which the following is a specification:

The object of my invention is, first, to connect a train of cars in such a manner that the draft will be applied to each car so as to relieve the side pressure of the wheels upon the rails during their passage around curves; second, to provide an automatic coupling that will be secure and yet flexible while the cars remain upon the track in proper order, but will uncouple a car that breaks down, or in any way gets off the track.

Figure 1 of my drawing is a top plan view, illustrating the construction, application, and operation of my invention.

a a a represent the longitudinal pieces of the floor-frame of a car. *b b b* are cross-pieces of the same frame. They are joined in any suitable manner. *c c* is a bar forming the main part of the coupling device. It may vary in length, and must be large and heavy enough to bear all the strain of the draft required to move the car and train. At its rear end it is linked to the cross-piece or floor-frame of the car in any suitable manner that will allow it longitudinal play sufficient to utilize the elasticity of the spring *d* to prevent jarring. A collar or shoulder on the bar *c* retains the elastic cushion or spring *d* in its place. The hinge-connection between the bar and the car must also allow the bar to swing or move side-wise. The point of connection may be in front or rear of the axle. *f f* are suitable springs, attached to the floor-frame in such a manner that their ends will come in contact with the bar *c* and retain it in its normal position in the center of the car. *g* is the enlarged end of the bar *c*, in the form of a jaw, and forms the locking part of the coupler. *h* is a spring-plate and clamp, attached at its rear end to the bar *c*, and enlarged at its front end to correspond with the jaw *g*.

Fig. 2 is a perspective view, illustrating more fully the form and operation of my coup-

ling device and its relation to the wide buffer, which carries anti-friction rollers.

k k is a buffer-plate, attached in any suitable way to the ends of the car in such a manner that it will co-operate with the bar *c*, which passes through the buffer-plate. Common rubber springs intervene between the plate and the car. I claim nothing as new in the buffer, excepting its form and adaptation to my coupler, and also the anti-friction rollers attached thereto. The buffer-plate *k* has a longitudinal central slot with beveled edges extending nearly its entire length. The combined bar, jaw, and clamp, *c*, *g*, and *h*, move laterally in this slot in the buffer-plate, but the distance of such movement is limited by the length of the slot. Vertical movement is also restricted or prevented by the slot. *m m* are anti-friction rollers, attached in any suitable manner on the under part of the plate to bear up the combined bar, jaw, and clamp when moved laterally in the slot of the buffer-plate. *n* represents a link, with a jaw on one end, in the position of escaping from the jaw *g* and clamp *h*. This link is an attachment designed to be carried in each car for the purpose of connecting a car having my improved coupling to a car fitted for a link-coupling only.

In the operation of my invention the lateral enlargement of the jaw *g* and clamp *h* afford a means of rounding and shaping the points to form a wide mouth for the reception of the jaw of the approaching car. The vertical enlargements give strength, and also adapt the coupling device for cars varying in height. If the top part of one jaw comes in contact with the lower portion of another a safe coupling will be effected.

It is obvious that my improvement is designed to be on each end of the car, and on all the cars used. The link *n*, with a jaw on one end, is a simple provision for coupling to cars that have a common draw-head, requiring a link to couple therewith.

The dotted lines in Fig. 1 indicate a curved track, and the bar *c* moved from the center of the car to form a chord corresponding with the arc of the curved track. The lengthening

of the chord, by means of a hinged bar, *c*, lessens the side pressure on the wheels upon the track or rails during their passage of a curve, and the danger of breaking rails and throwing cars from the track is thereby diminished. The position of the link *n* illustrates the manner in which an automatic uncoupling occurs when a car has left the track. A heavy side pressure, such as the dragging of a car or train off the track, will allow one jaw to free itself from the other with which it was interlocked. The downward pressure of a broken-down car will also release one jaw from the clasp of the other.

Any suitable device may be attached for the

purpose of uncoupling by operating a hand wheel or lever on the platform, or on the sides or top of a car.

I claim as my invention—

1. The combination of the hinged bar *c c*, springs *d* and *f f*, clamp *h*, and enlarged jaw *g*, in the manner and for the purposes specified.
2. The buffer-plate *k*, carrying the anti-friction rollers *m m*, combined with the coupling device *c g h*, in the manner described, and for the purposes specified.

LEVI W. POWLS.

Witnesses:

WILLIE RUNKLES,
J. R. HAMMOND.