

L. P. RIDER.
Car-Couplings.

No. 144,412.

Patented Nov. 11, 1873.

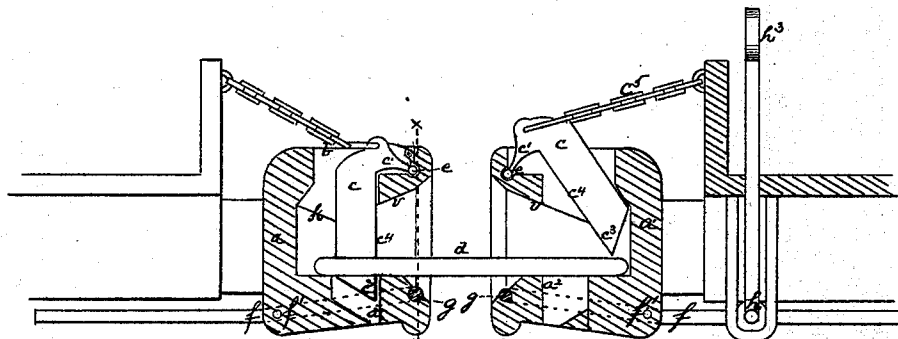


Figure 1.

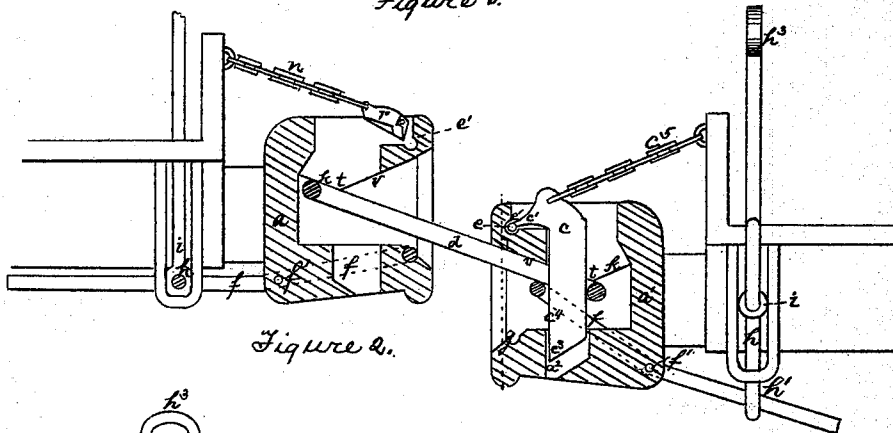


Figure 2.

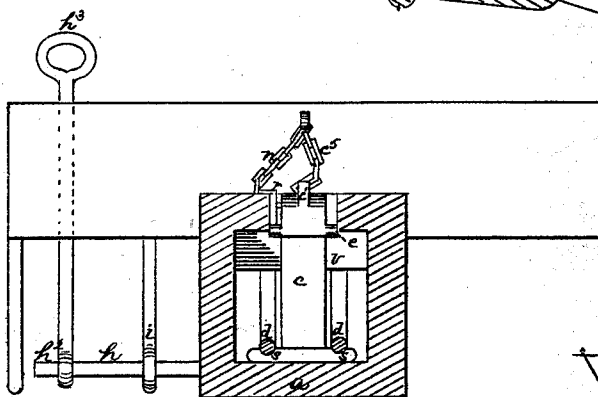


Figure 3.

WITNESSES
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UNITED STATES PATENT OFFICE.

LEMAN P. RIDER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. 144,412, dated November 11, 1873; application filed May 26, 1873.

To all whom it may concern:

Be it known that I, LEMAN P. RIDER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Car-Coupling; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a sectional view of two adjacent draw-heads, which embody my improvements, in the act of coupling. Fig. 2 is a like view of two draw-heads upon cars of different heights, and illustrates the method of coupling the same. The coupling-pin of the left-hand head is removed for the purpose of showing more fully a device for securing the same from being jarred or thrown out of position when in use. Fig. 3 is a section through the line *x x*, Fig. 1.

Like letters of reference indicate like parts in each.

My invention relates to that class of car-couplings in which the cars are coupled automatically, and in which the link-guiding device is operative from the outside or from the platform of the cars, so as to obviate the necessity of going between them; and it consists in the construction and arrangement of the several parts, substantially as hereinafter described and claimed.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

The draw-heads *a a'* are of the ordinary form known as "bell-mouth," and are provided with a slot or opening, *b*, in the top for the insertion of the coupling-pin *c*. The pin *c* has an arm, *c'*, extending forward to the pivot *e*, upon which it hangs so as to have a swinging motion, as illustrated in the head *a'* in Fig. 1. The front side *c''* of the pin *c* is straight, so that when the pin is dropped into the opening *b*, the pivot *e* catches upon the edge of the slot *b*, and the pin falls forward so as to bring its side *c''* against the straight side *a''* of the inner part of the head, which guides it to place. The inner part of the draw-head is cut away so as to provide room for the backward swing of the hinged pin *c*.

In coupling the cars the link *d* strikes the pin *c*, causing it to swing backward until the

link slides past, when the weight of the pin causes it to fall or drop through the link. By hinging the pin *c* forward at *e*, I secure a minimum of slack in the link, for the pin begins to rise as soon as struck by the link, instead of first swinging back, as would be the case if the pin hung vertically from the pivot *e*.

The back side of the lower end of the pin is sheared off, to correspond with a circle described by a radius centering at the pivot *e*. The result of this construction is, that as soon as the link passes the point *c'* of the pin *c*, the pin falls through the link without any further backward movement of the link.

By extending the arc of the circle a distance up from the point *c'* of the pin, I am enabled to increase the thickness of the pin without necessitating a further backward movement of the link in coupling, and thereby I reduce still further the slack between the cars. In fact I am able, by carefully following this construction, to reduce the slack to from one inch and a half to two inches, which I believe is the minimum.

In order to guide the link *d* when the cars to be coupled are of different heights, I place the U-shaped guide or lifter *f* in the groove *g* in the bottom of the coupling-head. This lifter *f* is hinged at *f'*, back of which one of its arms passes through the loop *h'* of the lever *h*. The lever *h* has its fulcrum in the rigid loop *i*, and is operative at the side of the car by the handle *h''*, or on the platform or within the car by the handle *h'''*, to move the guide *f*, so as to guide the link *d* to any desired height within its range. In order to get the widest range for the link *d*, the guide-lever *f* must be pivoted in advance of the projection of the upper slope of the mouth of the draw-head, so that if the lever *f* is raised, its end will strike the upper slope *v*. In order to allow the forward end of the link *d* to drop down so as to be coupled with a lower car, I make a reverse slope, *k*, at the back end of the inner part of the coupling-head. The slope *v* is made at such an angle as to permit the link *d*, while lying against the slope, as shown in Fig. 2, on the lowest car, to couple with the highest car, and the reverse slope *k* is made at such an angle as to permit the link *d*, when on the highest car, to couple with the lowest. When the

link *d* is raised by means of the lifter *f*, the point *t* acts as a fulcrum to throw its forward end up to the required height or angle. At one side of the front end of the slot *b* is a drop-latch, *r*, which is to hold the pin *c* in its place, and is of such construction that it permits the pin *c* to drop into place, but not to be withdrawn without being first drawn back itself. The journal *e* of the pin *c*, in its descent, strikes the latch *r*, which permits it to slide past, and then springs back into place, standing directly over the journal *e*, so as to prevent it from being jarred or otherwise accidentally thrown out of place. The latch *r* is secured by the chain *n* to the pin-chain *c*⁵, so that when the pin *c* is withdrawn by means of the chain *c*⁵ the latch *r* will be raised and permit the escape of the pin. To provide against the displacement of the pin *c* in case the latch *r* should be removed, I cut out the bearing in which the journals *e* of the pin rest, so as to form a ledge, *e'*, under which the journals *e* rest when the pin is in place. The loop *h*¹ on the operative lever *h* is made large so as not to bind the arm of the U-shaped lifter *f*, to accommodate the back play of the coupling-head. On the top of the U-shaped lifter *f* I make two recesses, *s*, for the purpose of holding the link *d* in line—that is, to prevent its lateral displacement.

By means of these several devices, and their

peculiar arrangement, I secure a self-coupling apparatus which overcomes the objection to the swinging pin, (by securing its operation with a minimum of slack,) which is adapted to cars of different heights, simple in construction, not liable to get out of order, and which entirely obviates the necessity of going between the cars for the purpose of guiding the link.

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

1. The pin *c*, having the arm *c*¹ and journals *e*, in combination with the ledge *e'* on the draw-head, and latch *r*, substantially as set forth.

2. The U-shaped lifter *f*, with one side or arm of the U projecting back and passing loosely through the loop *h*¹ in the lever *h*, and the loop *i*, all combined substantially as set forth.

3. The pin *c* and the latch *r*, connected by means of a chain, *n*, so that when the pin is withdrawn by means of the chain *c*⁵, the latch will be opened to permit its escape, all combined substantially as set forth.

In testimony whereof I, the said LEMAN P. RIDER, have hereunto set my hand.

LEMAN P. RIDER.

Witnesses:

B. C. CHRISTY,

THOS. B. KERR.