

(No Model.)

2 Sheets—Sheet 1.

M. H. KERN.

CAR COUPLING.

No. 349,848.

Patented Sept. 28, 1886.

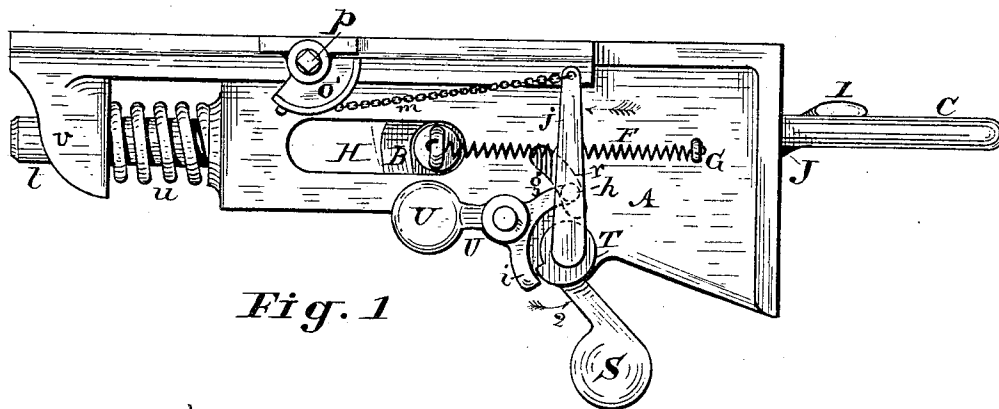


Fig. 1

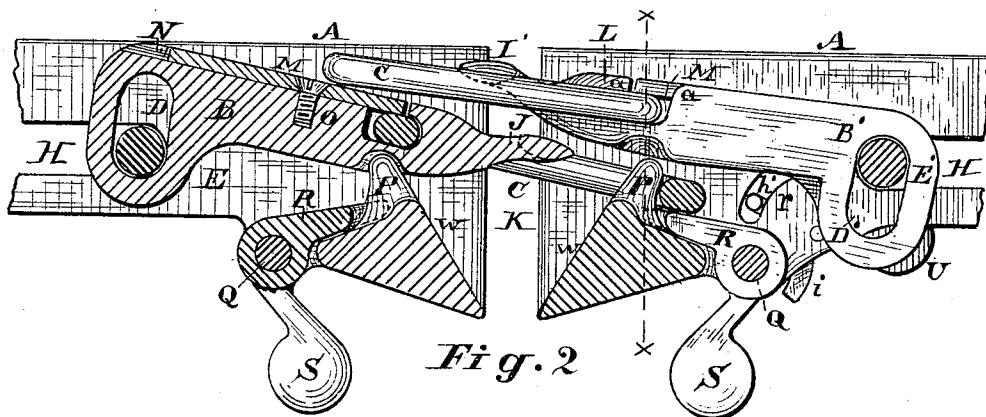


Fig. 2

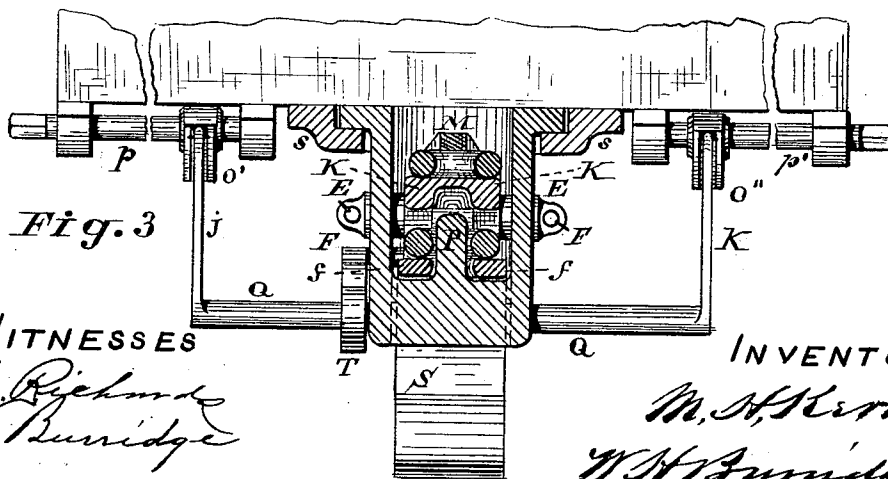


Fig. 3

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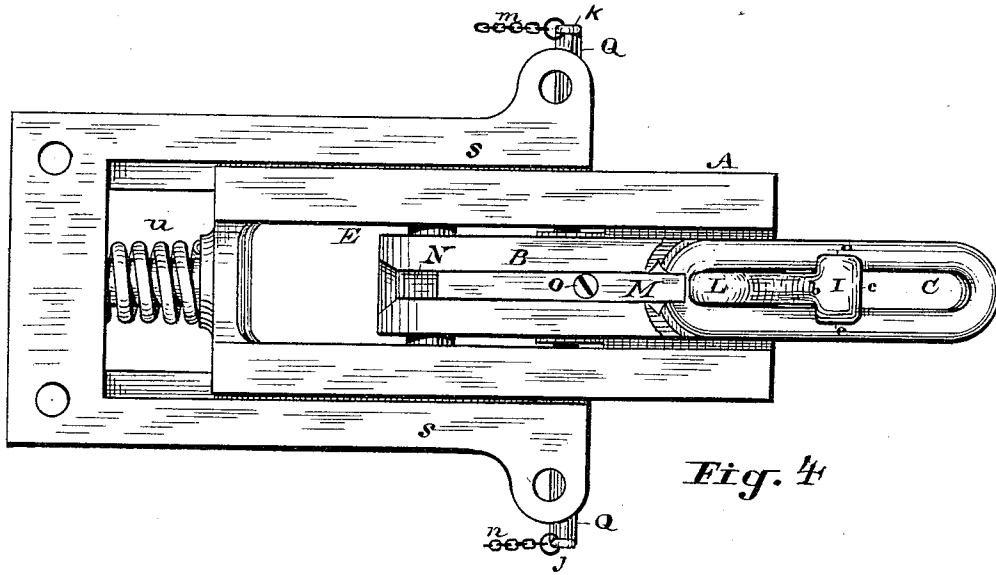


Fig. 4

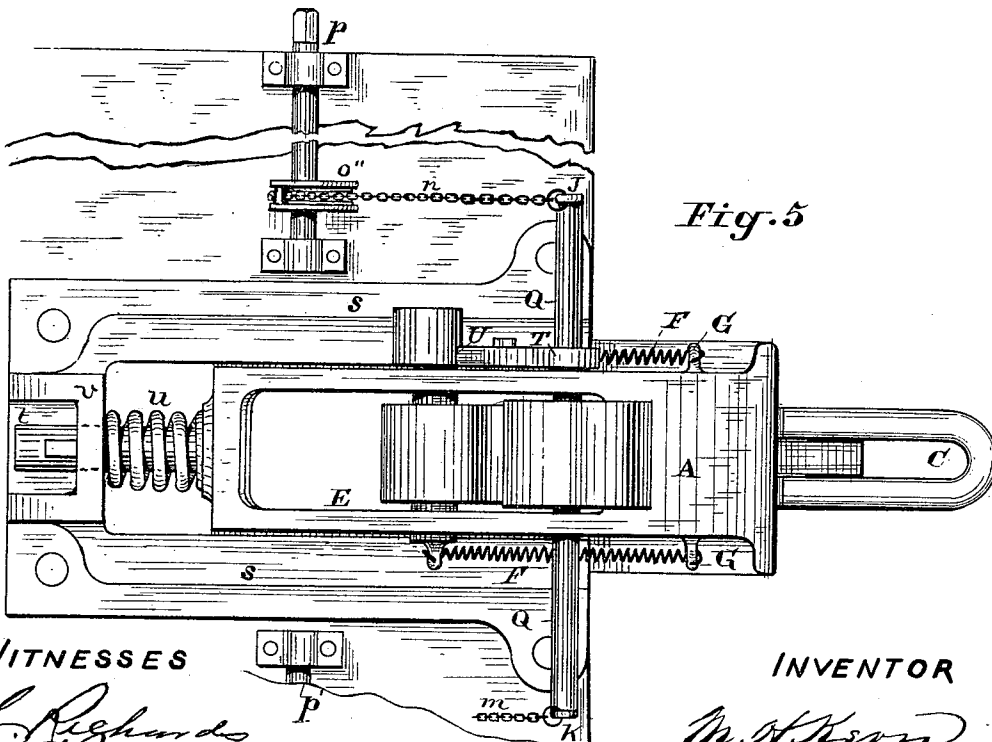


Fig. 5

WITNESSES

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UNITED STATES PATENT OFFICE.

MASON H. KERN, OF BELLEVUE, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 349,848, dated September 28, 1886.

Application filed July 26, 1886. Serial No. 209,085. (No model.)

To all whom it may concern:

Be it known that I, MASON H. KERN, of Bellevue, in the county of Sandusky and State of Ohio, have invented a certain new and Improved Railway-Car Coupling; and I do hereby declare that the following is a full, clear, and complete description thereof, it being an addition to a certain United States Patent to me granted July 13, 1886, No. 345,308.

The nature of the invention relates to the manner of attaching a removable link with the draw-arms of the buffer or draw-bar, which is so arranged that an ordinary link may be used with the coupler and readily detached if need be and another inserted in its place.

The improvement also relates to the mechanism employed in coupling and uncoupling to render it more effective and less expensive than the construction set forth in said patent.

To enable others skilled in the art of making and using this class of invention, I will proceed to describe the construction and operation thereof, reference being had to the following specification and to the annexed drawings, making part of the same.

Like letters of reference in said specifications and drawings designate like parts.

Figure 1 is a side view of the railway-car coupling. Fig. 2 is a longitudinal view of two couplings in connection partially in vertical section with the rear part of the buffers or draw-bars broken away. Fig. 3 is a transverse section in direction of the line *x x*, Fig. 2. Fig. 4 is a plan view, and Fig. 5 is a view of the under side, of the coupling, showing its connection with a portion of the car-frame.

A detailed description of each coupling need not be made, as one is essentially the same as the other; hence to avoid prolixity the special description will generally be confined to one of the couplings.

In the drawings, A, Fig. 1, represents the buffer or draw-bar; B B', Fig. 2, the draw-arms, and C C' the removable coupling-links. Each of said arms is enlarged at the rear end and provided with a slot, D D', respectively. Through each slot passes a shaft, E. To the ends of said shafts is connected a spring, F, one on each side of the draw-bar A, as seen in Figs. 1, 3, and 5. These springs extend from the connection with the shaft E to an attachment, G G, separately. The shaft E is

loose in the slot D, to allow of a vibrating movement of the draw-arms and attached links in coupling and uncoupling. The shaft E also passes through elongated slots H H' in the sides of the draw-bar, as seen in Figs. 1 and 2. This connection of the draw-arm with the shaft E and its arrangement conjointly with the slots H H' in the sides of the draw-bar admits of a longitudinal movement as well as a vibratory one in coupling cars, which relieves the cars and couplings from the great strain and jars to which they are subjected in making up a train, as the springs F F relieve the coupling mechanism from such strains and jolts in linking the coupling together.

The coupling-links C (which may be of the ordinary form and construction) are connected with the draw-arms. These draw-arms are alike and provided at the front end with a head, I, Figs. 1 and 4, to lap over on the link. The neck J, Fig. 2, below the head is of a size adapted to the opening of the link. The neck J extends to and terminates in the shoulders K K, Figs. 2 and 3, of the draw-arms. On these shoulders the link C rests, while between the shoulders projects a lug, L, into the opening of the link, so that the lower part of the link rests upon the shoulders K K on each side of the lug. The end of the link extends around the lug under the slide M, as seen in Figs. 2 and 4. This slide is fitted in a groove, N, preferably dovetailed to prevent its being jarred out. The slide is further held in place by means of a set-screw, O, which fastens it to the draw-arm. On withdrawing the screw O the slide M can be moved back from off the end of the link, which will admit of the link being raised up through the opening between the lug L and the front end of the groove N made by the slide M being moved back from over the end of the link. This opening is made between the points *a a*, Fig. 2, which space is closed when the link is in place, as shown in Figs. 2 and 4, and opened by the slide when the link is to be withdrawn from the draw-arm.

To remove the link from the draw-arm B, the end is first raised up through the opening made at *a a*, as before stated. The link is then turned at right angles to the draw-arm. Now, on tipping the link one side of the head will pass through the link, and then the whole head, as

it is narrower from *b* to *c* than from *d* to *e*, which will allow the head to pass through the opening of the link when moved in the position referred to. The advantage of this arrangement for the removal and attachment of links is that an ordinary coupling-link may be used and couple with a car having the common link-and-pin coupling, while in case a link is broken or becomes unfit for use it is easily removed and replaced by another without the cost and labor of renewing the coupling-links referred to in my said former application. In that construction the coupling-links and draw-arms were of one entire piece of such character that in the event of its breaking or becoming unfit for use it would require an entire new one to take its place, the labor and cost of which would be much greater than that of the improvement herein set forth.

In each draw-bar is a coupling-hook, *P*, which projects up into the mouth of the draw-bar, as seen in Figs. 2 and 3, and engages the link in coupling cars.

The mode of coupling and uncoupling is as follows: On the shaft *Q* is keyed an arm, *R*, having a counter-weight, *S*. The free end of the arm *R* is bifurcated to extend on each side of the hook *P*, as indicated at *ff*, Fig. 3. To the shaft *Q*, on the outside of the draw-bar, is secured a clutch, *T*, arranged for engagement with the weighted pawl *U*, pivoted to the side of the draw-bar, Figs. 1 and 5. Attached to the arm *g* is a pin, *h*, which extends through the curved slot and under the draw-arm *B*, Figs. 1 and 2. The arm *i* is for contracting with the clutch *T*. Secured to the shaft *Q* at each end is a lever, *j* and *k*, Figs. 3 and 4. To each is connected a chain, *m* and *n*, which chains extend to and connect with the segment-levers *O' O''*, respectively, Figs. 1 and 3. These segment-levers are each one separately secured to its shaft *p* and *p'*, provided with suitable bearings for movement and support under the body of the car, as shown in the drawings, Figs. 3 and 5. The shafts *p p'* extend sufficiently from the side of the car for applying a lever to the shafts for operating the coupling mechanism. When the two self-couplers are connected together, as shown in Fig. 2, they are uncoupled by turning the shaft *p* or *p'* to move the lever *j* in direction of the arrow 1, Fig. 1. Either of these shafts may be used for this purpose as most convenient. On moving the lever *j*, as stated, the arm *R* is also raised by means of the connecting mechanism before set forth, and lifts the link from off the hook *P*. The cars may then be separated. In raising the arm *R* the clutch *T* is moved in direction of the arrow 2, so that the arm *i* will engage the notch in the clutch by the gravity of the counter-weight *U*, and that of *S*, thus jointly acting to hold the arm *i* and clutch *T* in contact. On the movement of the arm *i* to engage the clutch the pin *h*, attached to the arm *g*, is then raised up in the curved slot *r*, Figs. 1 and 2. This pin *h* passes through

slot *r* and extends under the draw-arms, and upon which pin the draw-arm rests with the link off the hook *P* in uncoupling the cars and while they are being separated; but as soon as the links are withdrawn from the buffers or draw-bars *A A*, then the weight of the draw-arm and link upon the pin *h* forces down the arm *g* and detaches the arm *i* from its engagement with the clutch *T*, which causes the draw-arm and connected links to be moved in position for self-coupling again. When the cars are separated and the couplings in said position for self-coupling the cars, the arms *B B* have each a separate pivotal rest upon the hooks *P P*, respectively, which pivotal rest in connection with the slots *D* in the rear ends of the draw-arms allows the draw-arms and links to tip or vibrate on the hooks *P P*, by which means they are readily adjusted to the different heights and positions of the respective couplings on the cars to be connected. The draw-bar or buffer is connected to the base of the car-frame by means of plate *s s*, Figs. 1, 3, and 4, arranged to admit the draw-bar having a longitudinal movement. From the rear of the draw-bar extends a stem, *t*, around which is a spiral spring, *u*, between the end of the draw-bar and lug *v*. This allowed movement of the draw-bars in connection with the springs *u* and *F F* is for the purpose of relieving the coupling mechanism from undue strain when the cars are brought in contact for coupling. The slot *D* in the rear end of each draw-arm admits of a vertical vibration or movement of each draw-arm and its link, the hook *P* in the draw-bar acting as pivotal support, which, in combination with the incline plane *w* at the mouth of the draw-bar, renders the coupling mechanism easy of adjustment in connecting cars, as the links in coming together will readily slide one over the other on entering the mouth of the draw-bar, and the lower link will be pressed down and engage the hook of the opposite coupling by the weight of the draw-arm above it, as seen in Fig. 2. The upper draw-arm will be raised off the hook as the opposite draw-arm slides under it to connect with the hook in coupling. The upper part of the buffer may be either flat or flaring, as indicated by the broken lines in Fig. 1, to form a flaring mouth to receive the links of couplings of different heights.

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

1. In a railway-car coupling, the draw-arm having connected therewith a slide-bar, *M*, a head, *I*, a projection, *L*, with a shoulder or rest at the sides of said projection, in combination with a removable link and coupling-hook arranged, substantially as and for the purpose set forth.

2. The combination, with a railway-car coupling, of a draw-arm having at one end a coupling-link removably connected with said arm in the manner described, the rear end

provided with a slot, a shaft passing through said slot, and an elongated opening in the draw-bar, a spring attached to the ends of said shaft, and sides of the draw-bar, substantially
5 as described, and for the purpose specified.

3. The combination of a removable coupling-link connected with a draw-arm, B, by means of a head of said arm lapping over the link-bars on one side, and a rest or shoulder
10 for the link on the other, with a lug or projection between the shoulder extending into the opening of the link, and a slide-bar, M, connected with the draw-bar for retaining the link in position and relieving the same from
15 the draw-arm, substantially as and for the purpose specified.

4. In a railway-car coupling, the draw-arm having a pivotal support upon the hook P within the draw-bar A in coupling, and the rear end provided with a slot for the reception
20 of the bar E, and for the vibration of the draw-bar on the said hook for adjusting the links in position for self-coupling of cars, substantially as described, and for the purpose specified.
25

In testimony whereof I affix my signature in presence of two witnesses.

MASON H. KERN.

Witnesses:

W. H. BURRIDGE,
L. BURRIDGE.