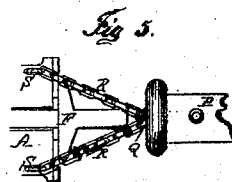
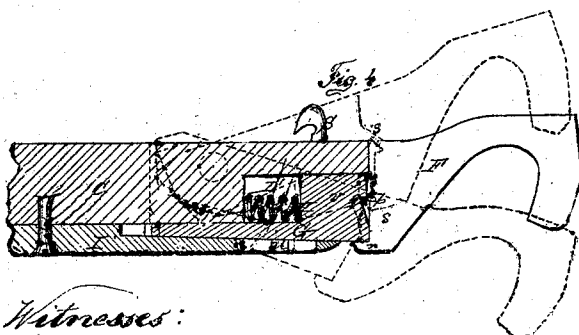
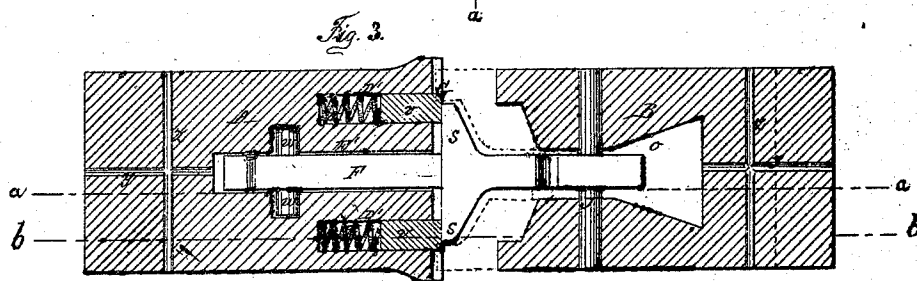
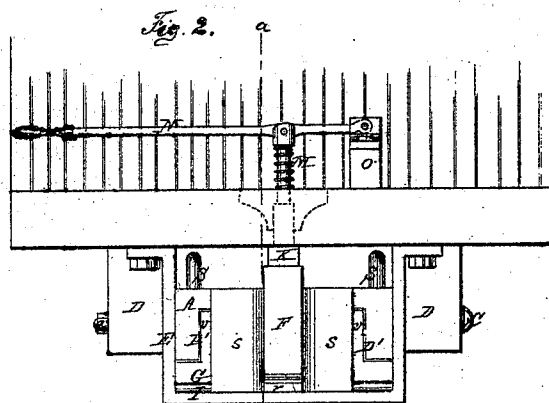
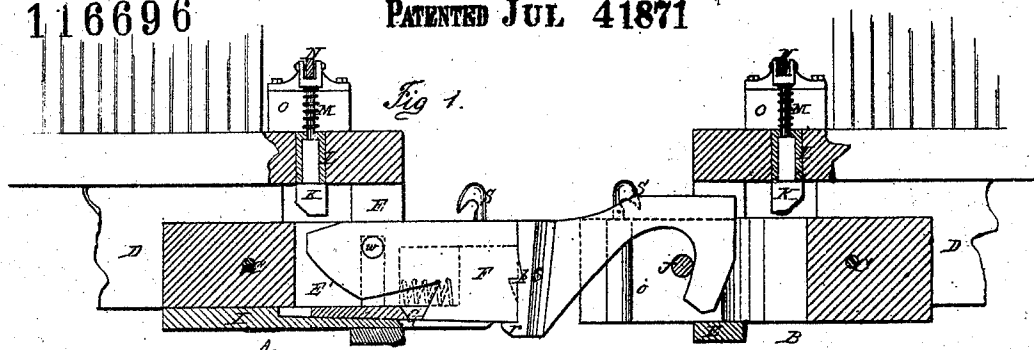


HENRY WILLIAM EARL. CAR COUPLING.

116696

PATENTED JUL 4 1871



Witnesses:
 Jas L. Swin
 Walter Allen

Inventor:
 Henry Wm. Earl
 By *Wm. H. H. H.*
 Attorney

UNITED STATES PATENT OFFICE.

HENRY WILLIAM EARL, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. 116,696, dated July 4, 1871.

To all whom it may concern:

Be it known that I, HENRY WILLIAM EARL, of the city of Baltimore and State of Maryland, have invented an Improved Car-Coupling, of which the following is a specification:

The subject-matter of my invention is an improved coupling for cars, constructed with hook-shackle, adapted to couple automatically; to couple cars of different heights; to uncouple only when the cars are brought together and the hook thus released; to couple by either head with an opposing head of common form; and to have either part removed and the other substituted therefor, if necessary, as when two male or two female heads are brought together by turning a car.

Figure 1 is a vertical longitudinal section of the adjoining ends of two freight-cars having my improved coupling applied thereto, in illustrative manner. Fig. 2 is an end elevation, showing the male draw-head. Fig. 3 is a horizontal section of the male and female draw-heads removed, showing the latter in its working and coupling positions. Fig. 4 is a vertical longitudinal section of the male draw-head in a plane parallel to that of Fig. 1, showing the coupling-hook locked at different elevations. Fig. 5 is a plan on a reduced scale, showing the male head coupled by link to one of common form.

The lines *a a*, Figs. 2 and 3, indicate the plane of the section shown in Fig. 1, and *b b* the plane of Fig. 4.

Like letters indicate corresponding parts in the different figures.

The draw-heads *A B* of my improved coupling I make of rectangular shape, in transverse section, and of uniform dimensions. They may be attached by short transverse draw-bars *C* passing through perforations *z*, or by longitudinal bars passing through longitudinal perforations *y*, as may be most convenient or preferable, each bar or bolt, in either case, being locked by a screw-nut, *x*, or its equivalent. They may be supported by lateral abutments *D* and loops *E*, as shown, or any equivalents thereof. The male head *A* is constructed with three vertical longitudinal recesses, *D' E' D'*, extending to the bottom and front of the heads, and having, with the exception of the central one, plane parallel sides. This receives the hook-shackle *F*, and is provided with vertical grooves in its sides

to receive trunnions *w*, forming the pivots of the same. The outer of said recesses *D'* receive corresponding heads *v* of a slide, *G*, and springs *H* behind the same. The bottoms of said recesses are closed by a plate, *I*, which is slotted correspondingly with the front end of the hook-recess *E'*, recessed on top to receive the said slide *G*, provided with vertical slots to receive stop-stud *u* projecting from the under side of said slide, and attached by bolts *t*. Said plate thus serves to unite and limit the motion of the parts. By detaching the same the parts may be readily removed. The hook *F*, in addition to its trunnions *w*, has a pair of lateral flanges, *s*, in line with the face of the slide *G*, and projecting partially over the heads *v* thereof. It is further provided with a horizontal flange or lip, *r*, adapted to engage under said slide or in notches *q* in its face, as illustrated in Fig. 4. The object of said vertical flanges is to support the said horizontal flange and to receive additional notches *p*. Said head is also constructed with a recess in its under side to adapt it for its extended vertical play. The female head *B*, Figs. 1 and 3, is constructed with a vertical recess, *o*, spanned by a bar, *J*, for the hook *F* to engage with. The outer end of said recess is made to correspond in general shape with the hook, being adapted to receive the lateral flanges *s* thereof in its extremity. Its rear end is extended and flared to provide for lateral movement and to receive the end of the hook when the heads are brought together. For uncoupling, a vertical slide, *K*, working in a suitable socket, *L*, and supported by a spring, *M*, is arranged in each platform, as indicated, and a lever, *N*, extended to the side of the platform, as shown, or to the top of the railing of a passenger-car, and a suitable fulcrum-support, *O*, for the same, through which to operate said slide, are arranged on each platform in proper position. Hooks *S* on the respective heads provide for the attachment of links *Q*, Fig. 5, by chains *R*, to adapt the head to which applied to couple with another, *P*, of common form.

To adapt the cars to couple automatically the hook *F* is left in the upper position, represented in Fig. 4, or with its flange *s* resting on the buffer-heads *v*. A pair of draw-heads being now brought together the said buffer-heads are forced in by the contact of the ends of the female head *B*, and the hook thus released, when

it drops by gravity until it rests on the bar J, which may be above or below its plane. As the cars separate, the said buffer-heads *v* are projected by the springs H and the hook locked in position by the flange *r* engaging under said heads *v*, or in a set of the notches *q* in the face thereof, or by said heads engaging with the notches *p* in the flanges *s*, according as the female head is on a line with, above or below, the male head, as illustrated in Fig. 4. The lifting of the hook by jolting is thus effectually prevented. To uncouple, the cars are brought together as with other couplings, so as to force in the buffer-heads *v*, when, by depressing the lever N, the hook is readily lifted. To couple either head with one of common form a link, Q, is attached to its hooks S by chains R, as illustrated in Fig. 5. To substitute one head for another it is only necessary to remove a nut, *x*, or its equivalent, and withdraw a draw-bar, C, remove the head thus detached, and apply the other by restoring the said bar and its nut, the attachments of the platform being uniform. Should a car be turned, the consequent disarrangement may thus be readily rectified.

I claim as my invention—

1. The shackle F, constructed with the flange or shoulder *r*, substantially as shown, in combination with the spring-slide G engaging with said shoulder to lock the shackle against elevation by jolting.

2. The notches *p* in the shackle F, in combination with the spring-slide G for locking the shackle below level, substantially as represented and described.

3. The notches *q* in the buffer-heads *v* of the spring-slide G, in combination with the flange or lip *r* on the shackle F for locking the shackle above level, substantially as shown and set forth.

4. The combination, with the heads A B, of a horizontal shackle-coupling of the hooks S, arranged as shown and described, to attach links Q by chains R for coupling with common heads.

To the foregoing specification of my improved car-coupling I have set my hand this 29th day of April, 1871.

HENRY W. EARL.

Witnesses:

JAS. L. EWING,

WM. H. BRERETON, Jr.