

E. BEST.
AUTOMATIC CAR COUPLING.

(Application filed Apr. 15, 1899.)

(No Model.)

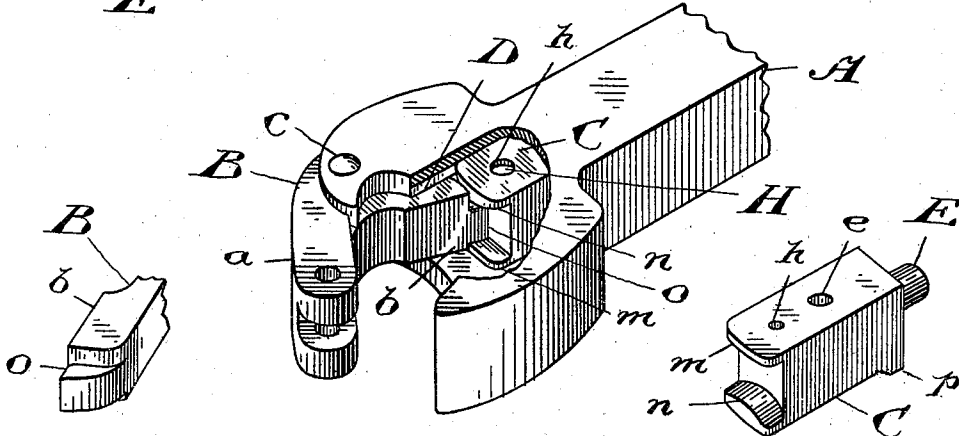
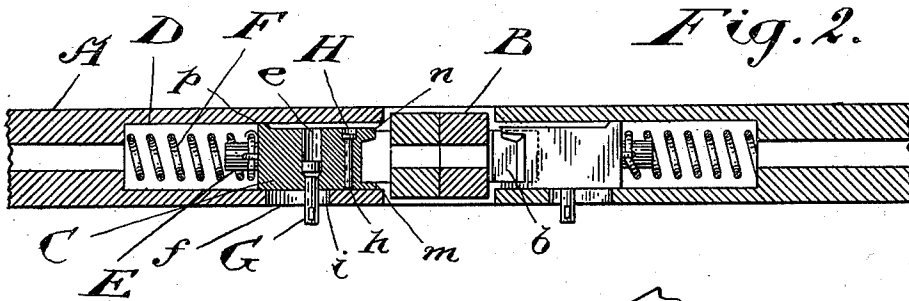
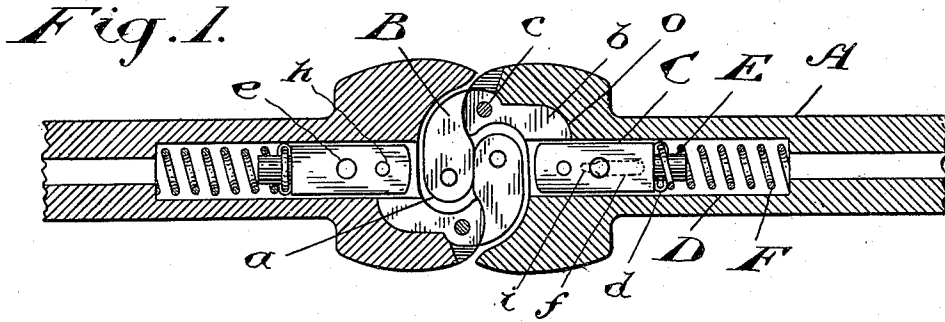


Fig. 4. Witnesses

A. J. Colbourne.

W. C. Dickson

Fig. 5.

Fig. 5. Inventor.

Edward Best.

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UNITED STATES PATENT OFFICE.

EDWARD BEST, OF LONDON, CANADA, ASSIGNOR OF ONE-HALF TO ALBERT R. PINGEL, GEORGE TAYLOR, WILLIAM S. BARKWELL, GEORGE BURNES, AND HOMER PINGEL, OF SAME PLACE.

AUTOMATIC CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 643,104, dated February 13, 1900.

Application filed April 15, 1899. Serial No. 713,136. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BEST, of the city of London, in the county of Middlesex and Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Car-Couplers, of which the following is a specification.

The object of the invention is to devise a simple, strong, and effective automatic car-coupler; and it consists, essentially, in providing each draw-head with a pivoted hook or knuckle provided with a tail in the path of which when the knuckle is in its coupled position lies a sliding lock, means being provided for withdrawing the sliding lock and retaining it out of the path of the tail of the knuckle when the cars are being uncoupled. Suitable means are also provided to release the sliding lock and allow it to return to its normal position as soon as the knuckle has been swung to its uncoupled position, the whole being constructed in detail substantially as hereinafter more specifically described and then definitely claimed.

Figure 1 is a sectional plan view of two draw-heads with couplers engaged. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a perspective view, partly broken away, of a draw-head provided with the improved coupler. Fig. 4 is a perspective view of the tail of the hook or knuckle. Fig. 5 is a perspective view of the sliding lock upside down.

In the drawings like letters of reference indicate corresponding parts in the different figures.

A is the draw-head, suitably shaped to contain and support the different parts.

B is a hook or knuckle, of which *a* is the coupling part, and *b* the tail or locking part. This hook or knuckle is pivoted within the draw-head, as shown at *c*.

C is a sliding lock longitudinally movable in a suitable guideway D, formed within the draw-head. When the parts are in the coupled position, as shown in Figs. 1 and 2, the sliding lock lies in front of the tail of the knuckle, effectually preventing it swinging to the uncoupled position. The rear of the

sliding lock is provided with a circular projection E, upon which are formed two eyelets *d*, with which are engaged one end of a coil-spring F, the other end of which bears against a suitable shoulder formed within the body of the draw-head. This spring tends always to retain the sliding lock in its locking position.

It will be noticed on reference to Fig. 2 that the sliding lock is less in height than the guideway in which it is adapted to slide, so that its front end may be readily raised from the bottom of the guideway. A rib *p* at the rear end of the lock almost completely fills the guideway, and thus tends to steady the lock without in any way interfering with the tipping motion just referred to.

Through the body of the lock C is formed a counterbored hole *e*, into which is fitted a suitably-turned bolt G, which when the parts are assembled projects outward through a slot *f*, formed in the shell of the draw-head. The end of this bolt is adapted for connection with any suitable means by which it may be moved in the slot from the sides or top of the car. It will be noticed that the full length of the bolt is not greater than the height of the guideway in which the lock slides, so that when the bolt is raised up the lock and bolt may be slid into position from the front of the draw-head and the bolt afterward allowed to drop through the slot *f*.

h is a counterbored hole drilled through the sliding lock. Within it is fitted a suitable locking-bolt H.

i is a hole bored in the bottom of the draw-head and adapted to receive the end of the locking-bolt when the sliding lock is drawn backward sufficiently far. This hole *i* communicates with the slot *f*, as shown in dotted lines at the right hand of Fig. 1, so that the locking-bolt will drop freely even though the sliding lock be moved back a little farther than is necessary for accurate engagement with the hole. The head of the bolt engaging with the shoulder formed by counterboring the hole in the block prevents the locking-bolt from dropping more than a limited distance previously determined upon.

The end of the sliding lock C has a flange *m* formed on its lower side and a curved cam *n* at its upper side. This cam not only is slightly curved in a horizontal plane and suitably curved in a vertical plane, but is also preferably made to slant downward from its front edge toward the rear, as indicated in Fig. 5. The end of the tail of the knuckle has a projection *o* formed thereon, which is adapted to enter between the flange *m* and the cam *n*, as shown in Fig. 3.

The operation of my improved coupler is substantially as follows: When the parts are in the position shown in Fig. 1 and it is desired to uncouple the cars, the bolt G is drawn back till the locking-bolt H drops into the hole *i*. The sliding lock is then held so far drawn back that the projection *o* on the tail of the knuckle will pass freely between the flange and the cam. Owing to the face of the cam being curved, as described, the tail of the knuckle will lift the forward end of the sliding lock till the bolt H is withdrawn from the hole *i* and the lock thus allowed to move forward to its original position; but by this time, of course, the knuckle has swung open sufficiently far to release itself from the knuckle on the opposite draw-head with which it was engaged. When the draw-head is to be coupled with another, the coming together of the two cars causes the coupling portion of each knuckle to pass between the draw-head and the locking part of the opposing knuckle, and the parts are pressed together till they again assume the position shown in Fig. 1. The projection *o* on the tail of each knuckle during this operation first presses against the face of the cam *n*; but as the lock is moved back it slips below the said cam, so that though it presses the sliding lock back it will not move it far enough for its locking-bolt to again engage with the tail on the under side of the draw-head. As soon as the tail has passed the sliding lock the latter again assumes its normal position and the coupler is securely locked.

From the above description it will be seen that I have devised a very simple, strong, and efficient automatic car-coupler in which there is no possibility of the parts getting out of order and which may be readily coupled and uncoupled at any time without requiring a man to go between the cars.

What I claim as my invention is—

1. In a car-coupler, a hook or knuckle pivoted in the draw-head, and provided with a suitable tail, in combination with a sliding lock longitudinally and vertically movable in a suitable guideway in the draw-head, and normally held by spring-pressure in the path of the said tail; means for drawing back the said lock to release the tail; and a locking-bolt sliding in a suitable hole in the lock and adapted to project a short distance below the bottom thereof, and to engage a hole in the

bottom of the draw-head when the lock is drawn back, the tail of the knuckle and the end of the lock being so shaped that the swinging outward of the tail to the uncoupled position raises the forward end of the lock and releases the said bolt from the said hole and that, in swinging outward to the coupled position, the tail slides by the lock, substantially as and for the purpose specified.

2. In a car-coupler, the hook or knuckle B, pivoted in the draw-head A, and provided with the tail *b*, in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G, connected to the lock and extending out through the slot *f*; the locking-bolt H, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* on the front end of the lock; and the curved projection *o* on the tail of the knuckle, substantially as and for the purpose specified.

3. In a car-coupler, the hook or knuckle B pivoted in the draw-head A, and provided with the tail *b*, in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G, connected to the lock and extending out through the slot *f*; the locking-bolt H, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* on the front end of the lock; the curved projection *o* on the tail of the knuckle; and the rib or flange P, on the lock C', substantially as and for the purpose specified.

4. In a car-coupler, the hook or knuckle B pivoted in the draw-head A, and provided with the tail *b*, in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G, connected to the lock and extending out through the slot *f*; the locking-bolt H, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* and flange *m* on the front end of the lock; and the curved projection *o* on the tail of the knuckle, substantially as and for the purpose specified.

5. In a car-coupler, the hook or knuckle B, pivoted in the draw-head A, and provided with the tail *b*, in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G,

connected to the lock and extending out through the slot *f*; the locking-bolt *H*, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* and flange *m* on the front end of the lock, the curved projection *o* on the tail of the knuckle and the rib or flange *P*, on the lock *C''*, substantially as and for the purpose specified.

London, Canada, March 25, 1899.

EDWARD BEST.

In presence of—

E. H. JOHNSTON,

C. D. JOHNSTON.