

No. 830,731.

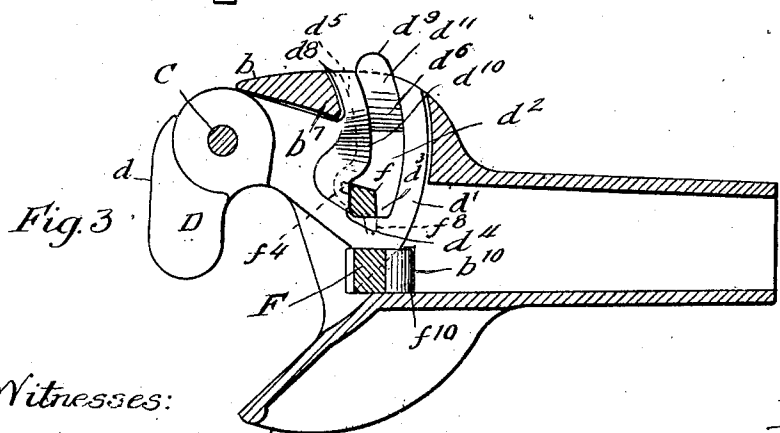
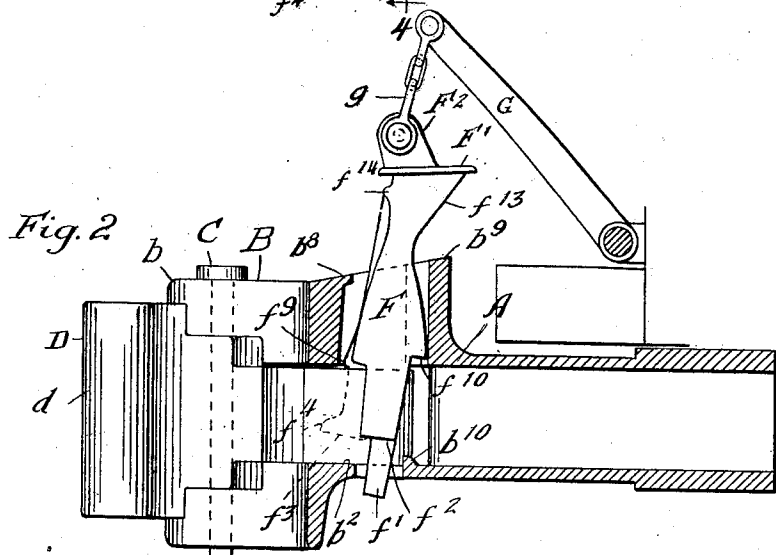
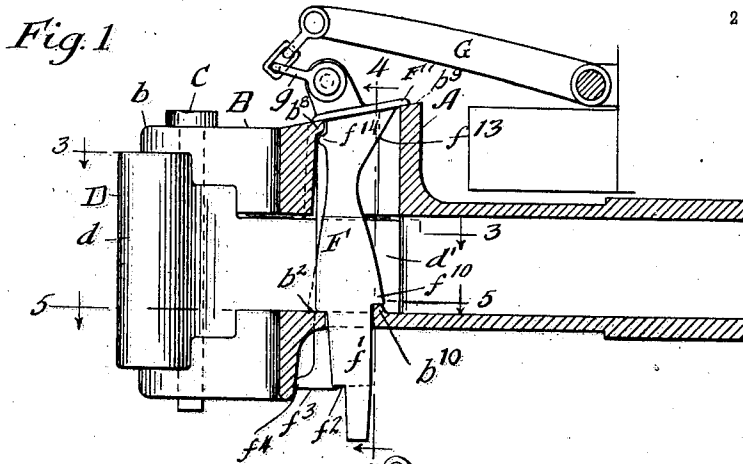
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J. MUNTON & G. A. HERMANSON.

CAR COUPLING.

APPLICATION FILED APR. 9, 1906.

2 SHEETS—SHEET 1.



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

No. 830,731.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed April 9, 1906. Serial No. 310,708.

To all whom it may concern:

Be it known that we, JAMES MUNTUN, residing in Maywood, and GUSTAF A. HERMANSON, residing in Chicago, in the county of Cook and State of Illinois, citizens of the United States, have invented a new and useful Improvement in Car-Couplers, of which the following is a specification.

Our invention relates to improvements in car-couplers, and more particularly to improvements upon the car-coupler shown and described in the Gustaf A. Hermanson patent, No. 812,927, of February 20, 1906.

The object of our invention is to improve and perfect the car-coupler of said Hermanson patent, No. 812,927, and cause the knuckle to be more easily started in its opening movement and to enable the lock to automatically release or be withdrawn without raising the lifting-lever in case the draft-rigging breaks, so that the knuckle may open and the coupler itself be supported by the lifting-lever, and thus prevented from dropping upon the track, and to insure the more certain automatic seating of the lock in coupling the cars.

Our invention consists in the means we employ to accomplish this object or result—that is to say, it consists in providing the knuckle-throwing leg on the lock of said Hermanson patent coupler with a secondary or initial knuckle-throwing toe or projection and the rear arm or tail of the knuckle with a secondary cam or incline to be engaged thereby in giving the knuckle its initial opening movement, so that the knuckle may be started open easily, in providing the back face of the lock near its upper end with a releasing cam or incline to enable the lock to be withdrawn in case of accident to the draft-rigging without raising the lifting-lever, and in providing the lock with a lock-seating boss or projection preferably located on the knuckle-throwing leg thereof to guide or deflect the lock in its downward or seating movement and cause it to surely drop into place and prevent improper engagement of its lock-set shoulder with the bottom web or floor of the draw-head.

Our invention further consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawings, forming a

part of this specification, Figure 1 is a central vertical longitudinal section of a car-coupler embodying our invention. Fig. 2 is a similar view showing the lock in its raised position. Fig. 3 is a horizontal section on line 3 3 of Fig. 1. Fig. 4 is a section on line 4 4 of Fig. 1. Fig. 5 is a detail horizontal section on line 5 5 of Fig. 1, the knuckle and lock being removed. Fig. 6 is a detail horizontal section on line 6 6 of Fig. 4. Fig. 7 is a detail side elevation of the lock. Fig. 8 is a detail front elevation of the lock. Fig. 9 is a detail perspective view of the knuckle.

In the drawings, A represents the draw-bar; B, the draw-head, having the customary pivot-arm *b* and guard-arm *b'*.

C is the pivot-pin; D, the knuckle; F, the gravity-lock, the same having a knuckle-throwing leg *f* and a lock-set leg *f'*. The knuckle D has the customary front arm or nose *d* and rear arm or tail *d'*. The rear arm or tail *d'* of the knuckle has a transversely-extending slot or passage-way *d²* to receive the knuckle-throwing leg *f* of the lock F. This slot or passage-way *d²* in the knuckle-tail is preferably curved about the pivot of the knuckle as a center and has a slight enlargement *d³* in its front walls *d⁴* to permit the lock to tilt slightly forward at its lower end and backward at its upper end to enable the lock-set shoulders or ledges *f² f³* on the lock to properly engage the lock-set ledges or shoulders *b² b³* in the bottom web or floor *b⁴* of the draw-head adjacent to the openings *b⁵ b⁶* therein, through which the knuckle-throwing leg *f* and lock-set leg *f'* of the lock F project. The knuckle-tail *d'* is also provided on the outer or pivot-pin side of the slot *d²* with an upwardly-extending incline or cam *d⁵*, adapted to be engaged by the knuckle-throwing foot or projection *f⁴* of the knuckle-throwing leg *f* of the lock F, and thus cause the knuckle to be automatically thrown open when the lock is lifted to the required extent. The tail or rear arm *d'* of the knuckle D is also furnished with a shelf or incline *d⁶*, adapted by its engagement with the lower end of the knuckle-throwing leg *f* to support the lock when the knuckle is open. The lower end of the knuckle-throwing leg *f* of the lock is provided with a beveled or inclined face *f⁵* to adapt it to properly ride up the incline or shelf *d⁶* of the knuckle-tail as the knuckle swings open. The lock F is also provided

with a lock-set shoulder or ledge f^7 , adapted to engage the knuckle-tail and support the knuckle thereon as the knuckle swings or begins to swing open. The knuckle D also has on its tail or rear arm a hook or projection d^8 , which when the knuckle is closed engages the projection or shoulder b^7 on the draw-head B, and thus affords an additional anchorage for holding the knuckle in the draw-head and in part relieving the pivot-pin C from strain.

The foot or projection f^4 on the knuckle-throwing leg f of the lock F not only serves by its engagement with the knuckle-tail to automatically throw the knuckle open, but also serves as a means for preventing the lock from being entirely removed from the coupler without first removing the pivot-pin C and taking the knuckle itself out. In other words, it prevents the lock F from being raised too high. For this purpose also the knuckle-throwing cam or incline d^6 is furnished with an extension d^9 slightly beyond the point necessary for fully throwing the knuckle open and which by engagement with said foot or projection f^4 of the lock prevents the lock from being removed when the knuckle is entirely open. The curved and inclined passage-way d^{10} in the front wall of the slot d^2 in the knuckle-tail for the foot or projection f^4 of the knuckle-thrower leg f has an open mouth d^{11} , so that when the lock is raised to the proper position and the pivot-pin C removed the knuckle can be removed from the draw-head and from its engagement with the lock-set leg f and foot or projection f^4 . This permits the ready removal of the parts and their easy assembling.

To cause the knuckle to be easily started open, we provide the lock-set leg f in addition to the knuckle-throwing foot or projection f^4 with an initial or secondary knuckle-throwing toe or projection f^8 , which engages a secondary or initial knuckle-throwing cam or incline d^{12} on the rear arm or tail d' of the knuckle and which serves to start the knuckle open before the knuckle-throwing foot or projection f^4 engages the cam or incline d^6 . The angles of the initial knuckle-throwing cams or inclines f^8 and d^{12} are made comparatively sharp or easy, so that the knuckle will readily start open, and thus prevent any sudden blow against the main knuckle-throwing foot or projection f^4 , which might tend to break the same off.

To enable the lock F to automatically release or be withdrawn in case of accident to the draft-rigging without raising the lifting-lever G, which is connected to the lug F^2 of the lock F by the link or clevis g , we provide the lock F with a releasing cam or incline f^{13} at the back side thereof near its upper end, which enables the lock to be released or withdrawn by a backward pull thereon; such as takes place when by accident the draft-rigging gives way and the draw-bar is pulled

forward. This enables our improved coupler to automatically release in case of accident to the draft-rigging and also causes the coupler to be supported by the lifting-lever and lock after the lock has been withdrawn sufficiently to permit the knuckle to open, thus preventing the coupler from dropping upon the track and endangering the train.

To cause the lock F to properly and automatically seat itself or drop to place when provided with the releasing-cam f^{13} , which prevents the upper end of the lock from being normally properly guided by the walls of the opening in the draw-head in which it fits, we provide the lock F with a lock guiding or seating boss or rounded projection f^9 , preferably on the lock-set leg f thereof and the rear arm or tail d' of the knuckle with the cooperating cam or curved surface d^5 , which engages said rounded projection or boss f^9 on the lock and guides the lock to place, thus causing it to properly lock and seat itself with certainty and reliability. To prevent the lock from creeping or accidentally moving upward when the train is in motion, we provide the draw-head with a lock-holding shoulder b^8 , which engages a lock-holding shoulder f^{14} on the lock F. To cause these lock-holding shoulders to remain normally in proper engagement with each other, we provide the lock F with an inclined cap or flange F' and the draw-head with a correspondingly-inclined upper face b^9 and the lock F at its back with a lock-supporting shoulder f^{10} , which engages the ledge or shoulder b^{10} on the bottom web or floor of the draw-head, and thus causes the lock to normally tilt forward by gravity.

We claim—

1. In a car-coupler, the combination with a forked draw-head, of a knuckle having a transversely-extending curved slot in its rear arm or tail and provided with a knuckle-throwing cam or incline, and an initial or secondary knuckle-throwing cam or incline, and a vertically-movable lock having a knuckle-throwing leg fitting in said transverse slot of the knuckle-tail, and furnished with a foot or projection engaging said first-mentioned cam or incline on the knuckle-tail to throw the knuckle open, and with an initial or secondary knuckle-throwing toe or projection engaging said second-mentioned cam or incline on the knuckle-tail, said lock being provided with a releasing cam or incline at its back near the upper end thereof to enable the lock to be automatically released or withdrawn so that the knuckle may open in case the draft-rigging gives way, substantially as specified.

2. In a car-coupler, the combination with a forked draw-head, of a knuckle having a transversely-extending curved slot in its rear arm or tail and provided with a knuckle-throwing cam or incline, and an initial or secondary knuckle-throwing cam or incline, and

a vertically-movable lock having a knuckle-throwing leg fitting in said transverse slot of the knuckle-tail, and furnished with a foot or projection engaging said first-mentioned cam or incline on the knuckle-tail to throw the knuckle open, and with an initial or secondary knuckle-throwing toe or projection engaging said second-mentioned cam or incline on the knuckle-tail, said lock being provided with a releasing cam or incline at its back near the upper end thereof to enable the lock to be automatically released or withdrawn so that the knuckle may open in case the draft-rigging gives way, said lock being further provided with a lock guiding or seating boss or rounded projection, and the knuckle-tail having a corresponding cam or curved surface to be engaged thereby and cause the lock to properly seat in coupling, substantially as specified.

3. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail, one of said legs of the lock having thereon a knuckle-throwing foot or projection and also an initial knuckle-throwing toe or projection and the knuckle-tail having coöperating cams or inclines engaged thereby, substantially as specified.

4. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail, one of said legs of the lock having thereon a knuckle-throwing foot or projection and also an initial knuckle-throwing toe or projection and the knuckle-tail having coöperating cams or inclines engaged thereby, said draw-head having a lock-holding shoulder and said lock having a coöperating lock-holding shoulder, substantially as specified.

5. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail, one of said legs of the lock having thereon a knuckle-throwing foot or projection and also an initial knuckle-throwing toe or projection and the knuckle-tail having coöperating cams or inclines engaged thereby, said lock having at its back near its upper end a releasing cam or incline, substantially as specified.

6. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail, one of said legs of the lock having thereon a knuckle-throwing foot or projection and also an initial knuckle-throwing toe or projection and the knuckle-tail having coöperating cams or inclines engaged thereby, said lock having at its back

near its upper end a releasing cam or incline, said lock being further provided with a lock seating or guiding boss or projection, substantially as specified.

7. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail, one of said legs of the lock having thereon a knuckle-throwing foot or projection and also an initial knuckle-throwing toe or projection and the knuckle-tail having coöperating cams or inclines engaged thereby, said lock having at its back near its upper end a releasing cam or incline, said lock being further provided with a lock seating or guiding boss or projection, and said knuckle having on its tail or rear arm a coöperating cam or curved surface, substantially as specified.

8. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail and is provided with a knuckle-throwing foot or projection, the knuckle-tail having a coöperating cam or incline for throwing the knuckle open as the lock is lifted, said draw-head and lock having coöperating lock-holding shoulders, substantially as specified.

9. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail and is provided with a knuckle-throwing foot or projection, the knuckle-tail having a coöperating cam or incline for throwing the knuckle open as the lock is lifted, said draw-head and lock having coöperating lock-holding shoulders, said lock having at its back a lock-supporting shoulder to cause the lock to tilt forward at its upper end, substantially as specified.

10. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail and is provided with a knuckle-throwing foot or projection, the knuckle-tail having a coöperating cam or incline for throwing the knuckle open as the lock is lifted, said draw-head and lock having coöperating lock-holding shoulders, said lock having at its back a lock-supporting shoulder to cause the lock to tilt forward at its upper end, and said lock also being provided with a releasing cam or incline at its back at the upper end thereof, substantially as specified.

11. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail, of a lock having two legs, one of which passes through the slot in the knuckle-tail and is provided with a knuckle-throwing foot or projection,

the knuckle-tail having a cooperating cam or incline for throwing the knuckle open as the lock is lifted, said draw-head and lock having cooperating lock-holding shoulders, and having at its back a lock-supporting shoulder to cause the lock to tilt forward at its upper end, and said lock also being provided with a releasing cam or incline at its back at the upper end thereof, and said lock being further provided with a lock seating or guiding boss or projection, substantially as specified.

12. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail furnished with a knuckle-opening cam or incline, of a lock having two legs, one of which is provided with a knuckle-throwing foot or projection and passes through said slot in the knuckle-tail, said draw-head having a forwardly-inclined upper face and the lock having a forwardly-inclined cap or flange, substantially as specified.

13. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail furnished with a knuckle-opening cam or incline, of a lock having two legs, one of which is provided with a knuckle-throwing foot or projection and passes through said slot in the knuckle-tail, said draw-head having a forwardly-inclined upper face and the lock having a forwardly-inclined cap or flange, said lock having a releasing cam or incline at its back near the upper end thereof, substantially as specified.

14. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle having a slotted rear arm or tail furnished with a knuckle-opening cam or incline, of a lock having two legs, one of which is provided with a knuckle-throwing foot or projection and passes through said slot in the knuckle-tail, said draw-head having a forwardly-inclined upper face and the lock having a forwardly-inclined cap or flange, said lock having a releasing cam or incline at its back near the upper end thereof, and said lock and draw-head having cooperating lock-holding shoulders, substantially as specified.

15. In a car-coupler, the combination with a forked draw-head, of a knuckle having a transversely-extending curved slot in its rear arm or tail and provided with a knuckle-throwing cam or incline, and an initial or secondary knuckle-throwing cam or incline and a vertically-movable lock having a knuckle-throwing leg fitting in said transverse slot of the knuckle-tail, and furnished with a foot or projection engaging said first-mentioned cam or incline on the knuckle-tail to throw the knuckle open, and with an initial or secondary knuckle-throwing toe or projection engaging said second-mentioned cam or incline on the knuckle-tail, substantially as specified.

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