

No. 646,173.

Patented Mar. 27, 1900.

G. A. HERMANSON.  
AUTOMATIC COUPLING FOR RAILWAY CARS.

(Application filed May 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

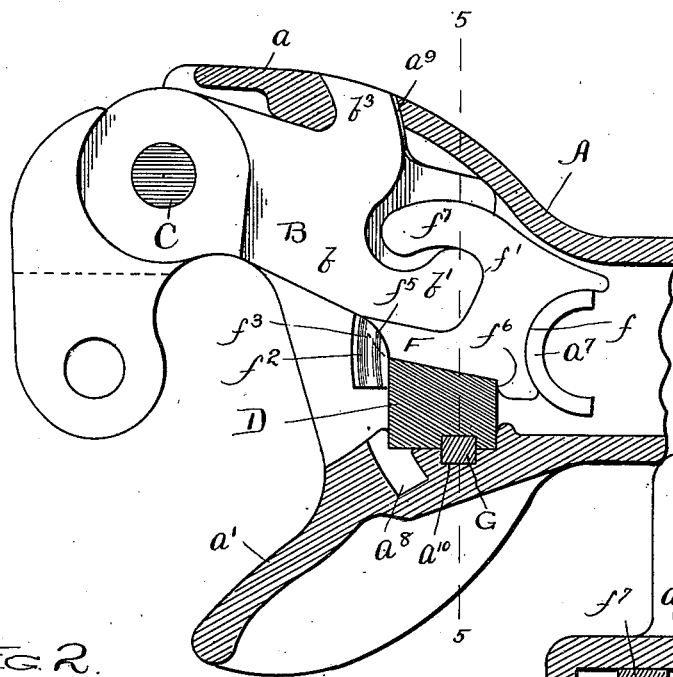


FIG. 2.

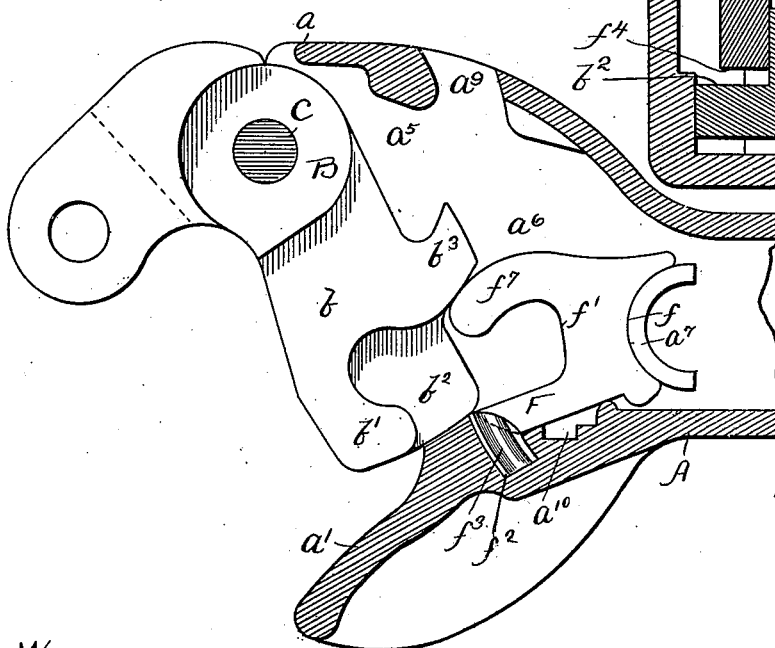
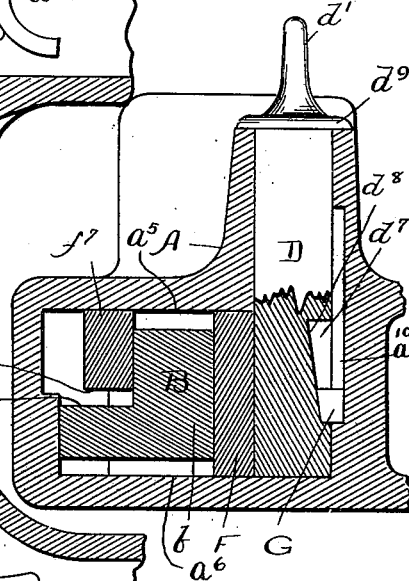


FIG. 5.



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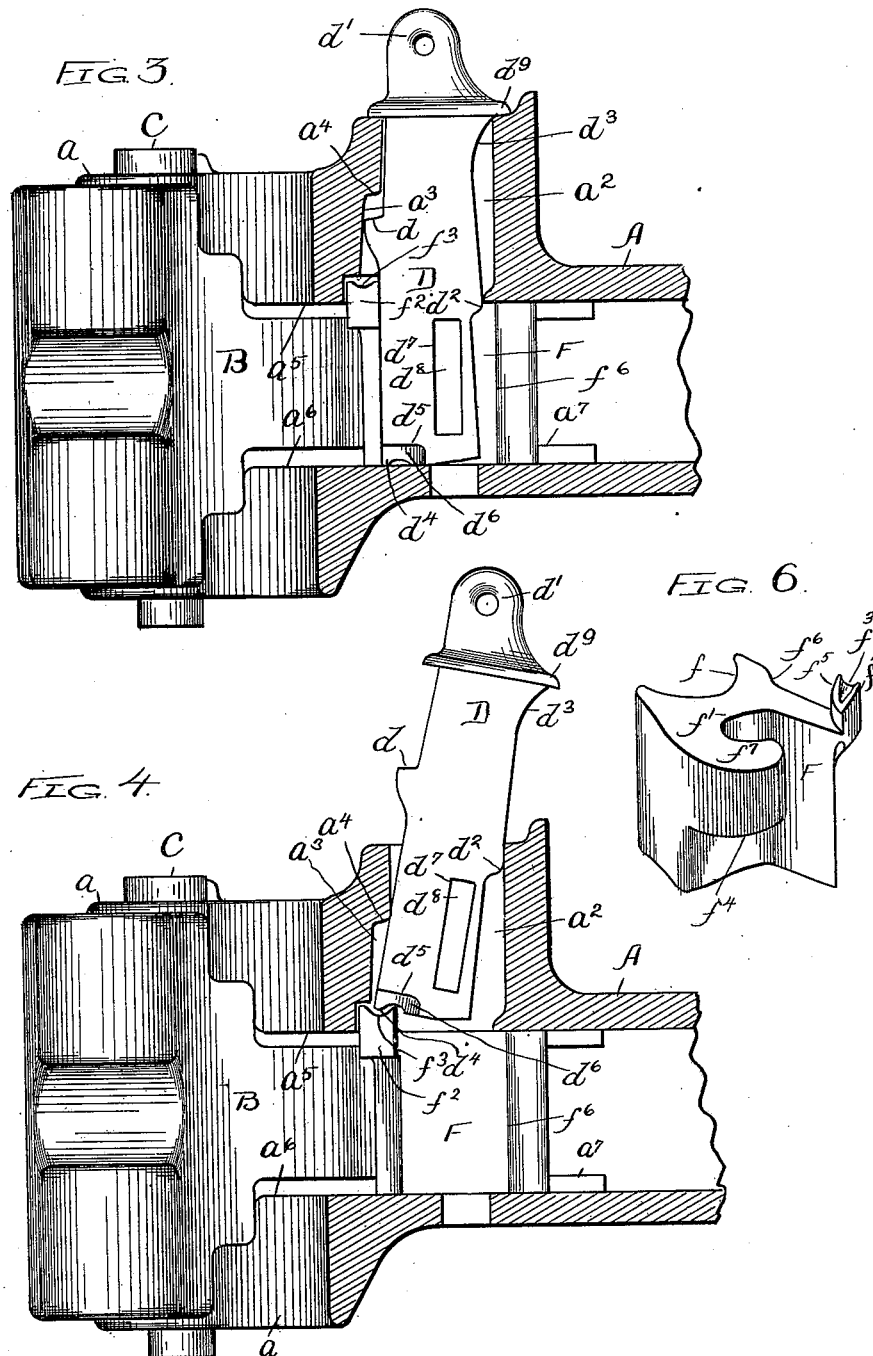
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# UNITED STATES PATENT OFFICE.

GUSTAF A. HERMANSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES MUNTON, OF MAYWOOD, ILLINOIS.

## AUTOMATIC COUPLING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 646,173, dated March 27, 1900.

Application filed May 10, 1899. Serial No. 716,190. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAF A. HERMANSON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Automatic Couplers for Railway-Cars, of which the following is a specification.

My invention relates to automatic car-couplers, and more particularly to certain improvements upon the car-coupler heretofore patented to me in Letters Patent of the United States No. 623,471, of April 18, 1899.

The object of my present improvement is to perfect the construction and operation of the coupler of my said former patent and provide means for positively preventing the lock from "jumping" upward by jolting of the cars when the train is under rapid motion, while also effectually overcoming any tendency of the lock to "climb" or "creep" upward.

My invention primarily consists, in connection with the forked draw-head, pivoted knuckle, and gravity locking pin or block, in providing the locking pin or block with a shoulder which is adapted to engage a corresponding shoulder on the draw-head, and thus prevent all possibility of the lock jumping.

My invention also consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described, and specified in the claims.

In the accompanying drawings, forming a part of this specification and in which similar letters of reference indicate like parts throughout the several views, Figures 1 and 2 are horizontal sections of a car-coupler embodying my invention. Figs. 3 and 4 are longitudinal vertical sections. Fig. 5 is a vertical cross-section on line 5 5 of Fig. 1, and Fig. 6 is a detail perspective view of the shield or protecting-plate.

In the drawings, A is the forked draw-head, having pivot-arm  $a$  and guard-arm  $a'$ ; B, the knuckle; C, the pivot-pin, and D the gravity-lock, locking-pin, or locking-block. The passage-way or opening  $a^2$  for the locking pin or block is provided with an offset or enlargement  $a^3$ , forming a shoulder or projection  $a^4$  on the front side of said passage, and the

locking pin or block D is provided with a corresponding shoulder or projection  $d$  on its front side to engage said shoulder  $a^4$  on the draw-head to prevent the lock from jumping and also from creeping or climbing.

To enable the lock D to be readily lifted from above by the customary lifting-chain attached to the eye  $d'$  of the lock, the lock is provided on its back or rear side from the shoulder  $d$  with an offset  $d^2$  and a curved rear face  $d^3$ . The offset or enlargement  $a^3$  in the lock passage-way in the draw-head, in connection with the curved or cam-shaped rear face  $d^3$  of the lock, permits the lock to tilt backward sufficiently at its upper end to cause the shoulder or projection  $d$  on the lock to clear the shoulder  $a^4$  on the draw-head. To facilitate this mode of operation, the shoulder  $a^4$  on the draw-head is so combined or arranged in respect to the shoulder  $d$  on the lock that the shoulder  $d$  is slightly below the shoulder  $a^4$  when the lock is in its lowermost position, so that the lock can move upward a limited extent before the shoulders  $d$   $a^4$  engage, and the eye  $d'$  of the lock for the same purpose is also preferably located slightly forward of the middle of the lock to increase the ordinary slight backward upward pull of the lifting-chain on the lock.

To increase the practical operative bearing-surface of the tail  $b$  of the knuckle against the lock D and prevent the knuckle-tail from exerting any upward "climbing" or "creeping" tendency on the lock, I interpose between the lock D and the rear arm or tail  $b$  of the knuckle, which would otherwise bear directly against the lock when the knuckle is closed, a movable arm, shield, or protecting-plate F, which fits snugly between the upper and lower walls  $a^5$   $a^6$  of the draw-head, so that it can have no vertical movement and is adapted to move or swing horizontally on a center or pivot  $a^7$ , preferably consisting of a circular ledge on the lower wall of the draw-head, against which the curved end  $f$  of the arm, shield, or protecting-plate F fits. This shield or protecting-plate F fits flat against the lock D, and thus gives an extended bearing against the lock, thereby adding materially to the strength, durability, and wearing qualities of the coupler. The movable or piv-

oted shield or protecting-plate F is provided with a fork or socket  $f'$  to receive the extreme rear end or projection  $b'$  of the tail or rear arm of the knuckle, said projection  $b'$  being preferably rounded to fit in said socket or fork  $f'$ . This connection  $b'f'$  between the shield or protecting-plate F and the knuckle causes the protecting-plate to be swung under the lock D by the tail of the knuckle when the knuckle is opened and to be swung back into position to permit the lock D to drop when the knuckle is closed. The movable arm, shield, or protecting-plate F is also preferably provided with a grooved projection  $f^2$  at the inner end of its fork for the lock D to rest upon, the lock having a grooved edge  $d^4$  to fit in the groove  $f^3$  of the projection  $f^2$ . The tail of the knuckle is also provided with an offset or shelf  $b^2$  at its rear edge and the shield or protecting-plate F with a notch  $f^4$  to fit on said shelf. In order, also, that the lock D may be held in its lifted position while the knuckle is closed, so that the knuckle may open when the cars are subsequently pulled apart, the hole or passage-way  $a^2$  in the draw-head, through which the lock D is inserted, is provided with the enlargement  $a^3$ , before mentioned, to permit the lock to be tilted, as illustrated in Fig. 4, sufficiently to cause its edge  $d^4$  to project over the grooved projection  $f^2$ , and thus hold the lock in this position. This raised part or projection  $f^2$  is provided with a curved or cam face  $f^5$ , and the lock D is provided with a notch  $d^5$  and a curved or cam face  $d^6$ , which is engaged by the curved or cam face  $f^5$  of the projection  $f^2$  and serves to push the lock back into a vertical position when the lock by reason of its notch  $d^5$  drops off the raised part or projection  $f^2$ . To guide the descent of the lock D, the shield F is provided with a guide or ledge  $f^6$ . The raised projection  $f^2$  also serves as a guide for the lock. The wall of the draw-head is provided with a notch or recess  $a^8$  to receive the projection or ledge  $f^2$  on the shield or protecting-plate. The tail or rear arm  $b$  of the knuckle is provided with a hook or projection  $b^3$ , which fits in a recess  $a^9$  in the pivot-arm of the draw-head, and this hook, by engaging the shoulder of said recess, serves to relieve the pivot-pin from strain and also to prevent the cars from becoming uncoupled in case the pivot-pin should be accidentally removed or become broken. The hook or projection  $b^3$  on the tail or rear arm of the knuckle overlapping the curved limb  $f^7$  of the fork  $f'$  also prevents the pivoted shield or protecting-plate F from accidentally swinging back when the knuckle is open, and thus getting in the way of the closing of the knuckle. The locking block or pin D is made wedging in cross-section—that is to say, its front face is thicker than its rear face—and this wedging or inclined cross-sectional shape of the locking-pin serves in operation to crowd the hook or projection  $b^3$  on the tail of the knuckle into proper engagement with the

shoulder of the recess  $a^9$ , and thus to take up any play or lost motion. When the knuckle opens, the pivoted shield or protecting-plate F is swung under the lock, so that the lock will rest upon and be supported by it. To prevent the lock D from being lifted entirely out of the draw-head, I provide the draw-head with a vertical slot or recess  $a^{10}$  and the lock with a vertical slot or recess  $d^7$  to receive the block G, one side of which is preferably inclined or wedging, and which in connection with said slots serves to limit the upward movement of the lock D. The back wall  $d^8$  of the recess or slot  $d^7$  in the lock D is inclined to permit the stop-block G to fit flush with the face of the lock to enable the stop-block G and lock D to be thus inserted in place.

The lock D is provided with the customary stop-flange  $d^9$  at its upper end.

I claim—

1. The combination with a draw-head, knuckle and gravity-lock, of a pivoted shield or protecting-plate interposed between the lock and the tail of the knuckle and bearing against the upper wall of the draw-head, said draw-head having a projection or shoulder  $a^4$  on the front wall and said lock having a projection on its front side adapted to fit under and engage said shoulder on the draw-head to prevent the lock from jumping, substantially as specified.

2. The combination with a pivoted knuckle of a draw-head having a lock passage-way furnished with a shoulder or projection on the front wall, of a gravity-lock having a shoulder or projection on its front side adapted to engage said shoulder on the draw-head to prevent the lock from jumping upward, said gravity-lock being made tapering in cross-section with its largest part toward the shoulder to aid in holding said shoulders in engagement, substantially as specified.

3. The combination with a pivoted knuckle, of a draw-head having a lock passage-way furnished with a shoulder or projection and an enlargement below the shoulder, of a gravity-lock having a shoulder or projection adapted to engage said shoulder in the draw-head to prevent the lock from jumping upward, the rear side of said lock having an offset and a curved or cam-shaped face, substantially as specified.

4. The combination with a pivoted knuckle, of a draw-head having a lock passage-way furnished with a shoulder or projection and an enlargement below the shoulder, of a gravity-lock having a shoulder or projection adapted to engage said shoulder in the draw-head to prevent the lock from jumping upward, the rear side of said lock having an offset and a curved or cam-shaped face, and a movable shield or protecting-plate interposed between the lock and the tail of the knuckle and bearing against the upper wall of the draw-head, substantially as specified.

5. In an automatic car-coupler, the combi-

nation with a draw-head, of a pivoted knuckle, a gravity-lock and a shield or protecting-plate F having a curved rear end *f* fitting and abutting against a curved boss *a'* on the  
5 lower wall of the draw-head as a pivot, said shield or protecting-plate F having a fork or socket *f'* embracing a projection *b'* on the tail or rear arm of the knuckle, substantially as specified.  
10 6. In an automatic car-coupler, the combination with a draw-head, of a pivoted knuckle, a gravity-lock and a shield or protecting-plate F having a curved rear end *f* fitting and abutting against a curved boss *a'* on the  
lower wall of the draw-head as a pivot, said 15 shield or protecting-plate F having a fork or socket *f'* embracing a projection *b'* on the tail or rear arm of the knuckle, the tail or rear arm of the knuckle having a hook or projection *b<sup>3</sup>* for the limb *f''* of said fork *f'* to fit 20 against and thus prevent said shield or protecting-plate F from turning on its pivot when the knuckle is open, substantially as specified.

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Witnesses:

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