





# UNITED STATES PATENT OFFICE.

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

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 711,160, dated October 14, 1902.

Application filed July 17, 1902. Serial No. 115,895. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAF A. HERMANSON, a subject of the King of Sweden and Norway, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Car-Couplers, of which the following is a specification.

My invention relates to automatic couplers for railway-cars of the class commonly known as "Master Car-Builders' couplers" and which have a forked draw-head, a pivoted knuckle, and a gravity-lock.

The object of my invention is to provide a car-coupler of a simple, efficient, strong, and durable construction in which the gravity-lock shall be incapable of creeping or jumping upward while the train is in motion and in which at the same time the lock may be readily lifted at various angles by the lifting-lever and connecting-chain, so that variations in the position of the lifting-lever or in the length of its lifting-arm will not interfere with the proper operation and so that at the same time if the draft-rigging gives way and the cars separate the lock will be lifted and permit the uncoupling of the couplers and at the same time support the detached coupler by the lifting lever and chain.

My invention consists, in connection with a forked draw-head and pivoted knuckle, of a gravity-lock provided with a notch or shoulder adapted to fit under the lower web or floor of the draw-bar and a lifting-piece having a sliding or movable connection with the lock and extending through the lower web or floor of the draw-head and operating to hold the notch or shoulder in engagement with the lower web or floor of the draw-head, and thus prevent the lock from moving upward except when it is lifted by the lifting-piece.

It also consists in providing the lifting-piece with a tapering enlargement at its upper end fitting the hole or socket in the draw-head at its extreme upper portion, so that at whatever angle the lifting-chain draws the lifting-piece it will move upward freely without binding.

It also consists in providing the lifting-piece with a projecting toe or guide to cause it to properly enter the passage-way in the lower web or floor of the draw-head.

It also consists in providing the lock with an extension at its lower end furnished with a recess having a shoulder at its upper end to serve as a lock-set by engagement with the lower web or floor of the draw-head, into which engagement the lock-set shoulder is thrown by the projecting toe or cam on the lifting-piece. The recess in the extension of the lock is also furnished with a shoulder or projecting lip at its lower portion which engages the lower web or floor of the draw-head and prevents the lock from being entirely removed from the draw-head. The lifting-piece is also provided with a shoulder on its rear face which coöperates to prevent the removal of the lock from the draw-head, and the lock itself is also provided with an offset portion, the shoulder of which is somewhat above the shoulder on the lifting-piece, so that when the lifting-piece and lock are nested close together in a raised position the lifting-piece and lock can be together withdrawn from the draw-head, thus rendering it unnecessary to employ any separate bolt, rivet, or other device for fastening the lock and keeping it from being withdrawn during service.

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

In the accompanying drawings, forming a part of this specification, Figure 1 is a central vertical longitudinal section of a car-coupler embodying my invention. Fig. 2 is a similar view showing the lock set in position for uncoupling. Fig. 3 is a horizontal section on line 3 3 of Fig. 1. Fig. 4 is a detail elevation of the lock and lifting-piece, and Fig. 5 is an elevation of the lifting-piece and lock looking from the opposite side from Fig. 4.

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

In the drawings, A represents the forked draw-head, having the customary pivot-arm  $a$  and guard-arm  $a'$  and draw-bar  $a^2$ .

B is the knuckle; C, the pivot-pin; D, the gravity-lock, and F the lifting-piece, the same having a sliding connection  $f d$  with the lock, consisting, preferably, of a slot and pin, the pin having an oblong head  $f'$  to permit the



lock and lifting-piece to be assembled or put together by turning them transverse to each other. The pin  $f$  is preferably cast integral with the lifting-piece.

5 The lock D has at its lower end a recess or notch  $d'$  in its front face, forming a shoulder  $d^2$ , which fits under the lower horizontal web or floor  $a^3$  of the draw-head to prevent the lock creeping or jumping upward when the cars are in motion or except when the lock is being lifted by the lifting-piece. The sliding lifting-piece F extends at its lower portion through the passage-way  $a^4$  for the lock in the lower web  $a^3$  of the draw-head and alongside the lock and operates to hold or keep the shoulder  $d^2$  of the notch  $d'$  normally in engagement with the lower web  $a^3$  of the draw-head, and thus prevent the lock from moving upward except when it is lifted by the lifting-piece. The lower end of the lifting-piece F is provided with a tapering or bevel face  $f^2$  to facilitate its entrance into the passage-way or opening  $a^4$  and with a projecting toe or guide  $f^3$ , which by engagement with the wall  $a^5$  of the lock passage-way  $a^6$  in the draw-head guides the lifting-piece in its downward movement. To enable the lock to be readily lifted after the lifting-piece F has been moved upward sufficiently to disengage its lower end from the hole or opening  $a^4$  in the lower web  $a^3$  of the draw-head, the interengaging shoulder  $d^2$  and web  $a^3$ , one or both, and preferably the shoulder  $d^2$ , is furnished with a bevel or tapering face  $d^3$ . To enable the lock to be readily lifted by the customary lifting-lever G and connecting-chain  $g$  at varying angles rearward, forward, or to either side, the lifting-piece F is provided at its upper end with an enlargement  $f^4$ , having tapering faces  $f^5$ , which fits in the upper portion of the passage-way  $a^7$  in the draw-head, and while holding the lifting-piece and lock laterally in position at the same time enables the lifting-piece to be started out of the draw-head by a strain through the lifting-chain  $g$  at varying angles to the rear, front, or side. This is a great practical convenience, as frequently the position of the operating-arm of the lifting-lever varies on different cars in its relation to the lock. This also insures the proper uncoupling of the couplers in case the draft-rigging of one coupler gives way and causes the disabled coupler to be supported by the lifting-lever and chain, and thus prevents derailment or accidents arising from the dropping of a disabled coupler on the track. The lock D is also provided at its lower end with an extension  $D'$ , having a notch or recess  $d^4$  therein, the upper shoulder  $d^5$  of which is adapted to engage and rest upon the lower web  $a^3$  of the draw-head, and thus serve as a lock-set, said web  $a^3$  having, preferably, a raised seat  $a^8$  for the lock-set shoulder  $d^5$ . After the lock is lifted by the lifting-piece to uncouple the cars and is then permitted to descend the projecting toe or guide  $f^3$  on the lifting-piece serves to guide

the lock in its descent so that the lock-set shoulder  $d^5$  will engage the lower web  $a^3$  of the draw-head, and thus set the lock in position for uncoupling when the cars subsequently separate. The lower shoulder  $d^6$  of the notch or recess  $d^4$  also serves by its engagement with the lower web  $a^3$  of the draw-head to prevent the lock and lifting-piece connected therewith from being entirely removed from the draw-head, and thus becoming lost or stolen. A shoulder  $f^6$  on the lifting-piece engaging a corresponding shoulder  $a^9$  on the draw-head also coöperates to this end. The lock D likewise is also preferably furnished with an offset  $d^7$ . The offset  $d^7$  is somewhat above the shoulder  $f^6$  on the lifting-piece, so that when the lifting-piece and lock are nested together in a raised position the lifting-piece and lock can be together withdrawn from the draw-head or inserted in place. The lock D has an offset  $d^8$  at its upper portion fitting a corresponding offset  $f^7$  on the lifting-piece. The lower portion of the lock, which coöperates with the tail of the knuckle, is thus made large to give a proper bearing against the tail of the knuckle, while its upper portion, which connects with the lifting-piece, is correspondingly small or thin, while the upper portion of the lifting-piece is made large to properly fill the passage-way of the draw-head, and its lower part F' is small or thin and preferably somewhat tapering, so as to more snugly hold the lock in position and its shoulder  $d^3$  in proper engagement with the lower web  $a^3$  of the draw-head.

I claim—

1. In a car-coupler, the combination with a forked draw-head, of a knuckle, a gravity-lock having a shoulder at its lower portion engaging and fitting under the lower web of the draw-head, and a lifting-piece having a sliding connection with the lock, substantially as specified.

2. In a car-coupler, the combination with a forked draw-head, of a knuckle, a gravity-lock having a shoulder at its lower portion engaging and fitting under the lower web of the draw-head, and a lifting-piece having a sliding connection with the lock, the interengaging shoulder on the lock and web of the draw-head having a bevel or tapering face, substantially as specified.

3. In a car-coupler, the combination with a forked draw-head, of a knuckle, a gravity-lock having a shoulder at its lower portion engaging the lower web of the draw-head, and a lifting-piece having a sliding connection with the lock, the lower end of the lifting-piece projecting through the lock-opening in the lower web of the draw-head, substantially as specified.

4. In a car-coupler, the combination with a forked draw-head, of a knuckle, a gravity-lock having a shoulder at its lower portion engaging the lower web of the draw-head, and a lifting-piece having a sliding connection with the lock, the lower end of the lifting-



piece projecting through the lock-opening in the lower web of the draw-head and being provided with a tapering or bevel face, substantially as specified.

5 5. In a car-coupler, the combination with a forked draw-head, of a knuckle, a gravity-lock having a shoulder at its lower portion engaging the lower web of the draw-head, and a lifting-piece having a sliding connection with the lock, the lower end of the lifting-  
10 piece projecting through the lock-opening in the lower web of the draw-head and being provided with a tapering or bevel face, said lifting-piece also having a projecting toe or  
15 guide to guide its downward movement, substantially as specified.

6. In a car-coupler, the combination with a forked draw-head having a lower horizontal web provided with a hole or passage-way to  
20 receive the lower end of the lock, of a knuckle, a gravity-lock having a shoulder in its lower portion adapted to fit under and engage the web of the draw-head, and a lifting-piece having a sliding connection with the lock and ex-  
25 tending at its lower end through the opening in the lower web of the draw-head to hold said shoulder on the lock in engagement with the web of the draw-head, substantially as specified.

30 7. In a car-coupler, the combination with a forked draw-head having a lower horizontal web provided with a hole or passage-way to receive the lower end of the lock, of a knuckle, a gravity-lock having a shoulder in its lower  
35 portion adapted to fit under and engage the web of the draw-head, and a lifting-piece having a sliding connection with the lock and extending at its lower end through the opening in the lower web of the draw-head to hold  
40 said shoulder on the lock in engagement with the web of the draw-head, said lifting-piece having a tapering enlargement at its upper end fitting the hole or socket in the draw-head at its upper portion to enable the lock to be  
45 lifted at varying angles by the lifting chain and lever, substantially as specified.

8. In a car-coupler, the combination with a forked draw-head having a lower horizontal web provided with a hole or passage-way to  
50 receive the lower end of the lock, of a knuckle, a gravity-lock having a shoulder in its lower portion adapted to fit under and engage the web of the draw-head, and a lifting-piece having a sliding connection with the lock and ex-  
55 tending at its lower end through the opening in the lower web of the draw-head to hold said shoulder on the lock in engagement with the web of the draw-head, said lock having an extension at its lower end having a recess  
60 and shoulder at the upper end thereof to serve as a lock-set by engagement with the lower web of the draw-head, substantially as specified.

9. In a car-coupler, the combination with a  
65 forked draw-head having a lower horizontal web provided with a hole or passage-way to

receive the lower end of the lock, of a knuckle, a gravity-lock having a shoulder in its lower portion adapted to fit under and engage the web of the draw-head, and a lifting-piece hav-  
70 ing a sliding connection with the lock and extending at its lower end through the opening in the lower web of the draw-head to hold said shoulder on the lock in engagement with the web of the draw-head, said lifting-piece  
75 having a projecting toe or guide, substantially as specified.

10. In a car-coupler, the combination with a forked draw-head having a lower horizontal web provided with a hole or passage-way to  
80 receive the lower end of the lock, of a knuckle, a gravity-lock having a shoulder in its lower portion adapted to fit under and engage the web of the draw-head, and a lifting-piece having a sliding connection with the lock and ex-  
85 tending at its lower end through the opening in the lower web of the draw-head to hold said shoulder on the lock in engagement with the web of the draw-head, said lifting-piece having a projecting toe or guide, said lock  
90 having an extension at its lower end furnished with a recess having a shoulder at the upper end thereof to serve as a lock-set by engagement with the lower web of the draw-head, the projecting toe or guide on the lifting-  
95 piece cooperating to guide the lock-set shoulder into engagement with the web of the draw-head, substantially as specified.

11. In a car-coupler, the combination with a forked draw-head having a lower horizontal  
100 web provided with a hole or passage-way to receive the lower end of the lock, of a knuckle, a gravity-lock having a shoulder in its lower portion adapted to fit under and engage the web of the draw-head, and a lifting-piece hav-  
105 ing a sliding connection with the lock and extending at its lower end through the opening in the lower web of the draw-head to hold said shoulder on the lock in engagement with the web of the draw-head, said lifting-piece  
110 having a projecting toe or guide, said lock having an extension at its lower end furnished with a recess having a shoulder at the upper end thereof to serve as a lock-set by engage-  
115 ment with the lower web of the draw-head, the projecting toe or guide on the lifting-piece cooperating to guide the lock-set shoulder into engagement with the web of the draw-head, said recess in the extension of the lock  
120 having also a shoulder at its lower end to prevent the withdrawal of the lock from the draw-head by engagement with the lower web of the draw-head, substantially as specified.

12. In a car-coupler, the combination with a forked draw-head having a lower horizontal  
125 web provided with a hole or passage-way to receive the lower end of the lock, of a knuckle, a gravity-lock having a shoulder on its lower portion adapted to fit under and engage the web of the draw-head, and a lifting-piece hav-  
130 ing a sliding connection with the lock and extending at its lower end through the open-



ing in the lower web of the draw-head to hold  
said shoulder on the lock in engagement with  
the web of the draw-head, said lifting-piece  
having a projecting toe or guide said lock  
5 having an extension at its lower end fur-  
nished with a recess having a shoulder at the  
upper end thereof to serve as a lock-set by  
engagement with the lower web of the draw-  
head, the projecting toe or guide on the lift-  
10 ing-piece cooperating to guide the lock-set  
shoulder into engagement with the web of the  
draw-head, said recess in the extension of the  
lock having also a shoulder at its lower end  
to prevent the withdrawal of the lock from  
15 the draw-head by engaging with the lower  
web of the draw-head, said lifting-piece being  
also provided with a shoulder on its rear face  
cooperating with a shoulder on the draw-head,  
substantially as specified.  
20 13. In a car-coupler, the combination with  
a forked draw-head, of a knuckle, a gravity  
lock and a lifting-piece having a sliding con-  
nection with the lock, the lock having a shoul-  
der engaging the lower web of the draw-head  
25 to prevent its creeping or jumping upward,  
the lock having an offset at its upper portion  
and the lifting-piece having a corresponding

interfitting offset at its lower portion, sub-  
stantially as specified.

14. In a car-coupler, the combination with 30  
a forked draw-head, of a knuckle, a gravity-  
lock and a lifting-piece having a sliding con-  
nection with the lock, said lifting-piece hav-  
ing a tapering enlargement at its upper por-  
tion to enable the lock to be lifted by the lift- 35  
ing-chain and lever at varying angles, sub-  
stantially as specified.

15. In a car-coupler, the combination with  
a forked draw-head, of a knuckle, a gravity-  
lock and a lifting-piece having a sliding con- 40  
nection with the lock, the lifting-piece hav-  
ing a shoulder on its rear face engaging a cor-  
responding shoulder on the draw-head and  
the lock having an offset on its front face, the  
shoulder of which is above the shoulder on the 45  
lifting-piece to enable the lock and lifting-  
piece to be inserted in the draw-head and  
withdrawn when the two are nested together,  
substantially as specified.

GUSTAF A. HERMANSON.

Witnesses:

EDMUND ADCOCK,  
H. M. MUNDAY.