

G. A. HERMANSON.
CAR COUPLING.
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1,049,086.

Patented Dec. 31, 1912.

2 SHEETS—SHEET 1.

Fig. 1

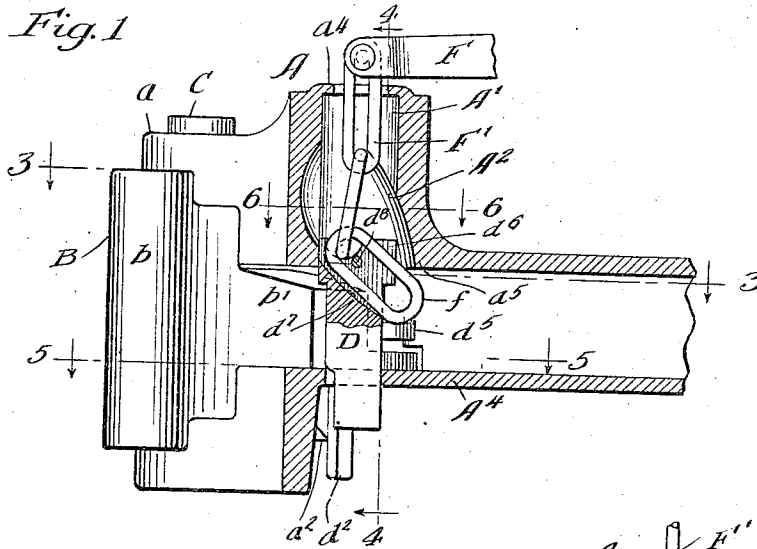


Fig. 2

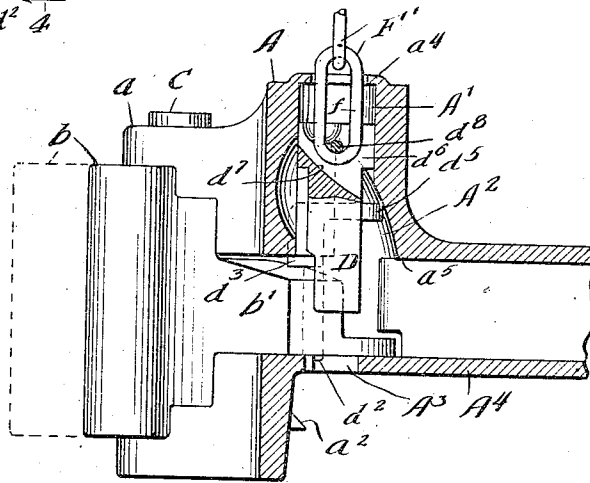
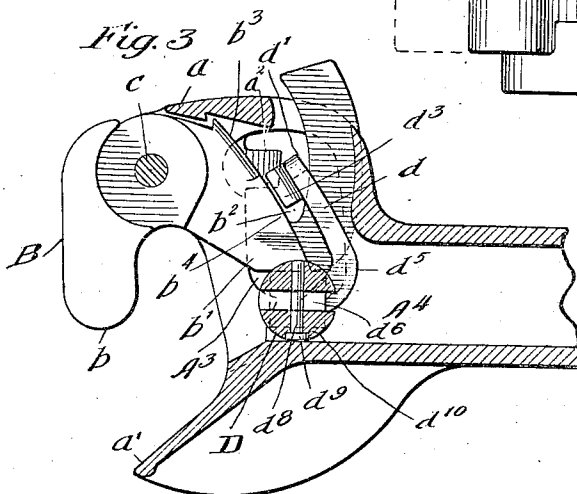


Fig. 3



Witnesses:

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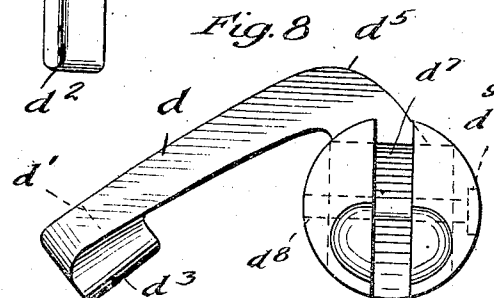
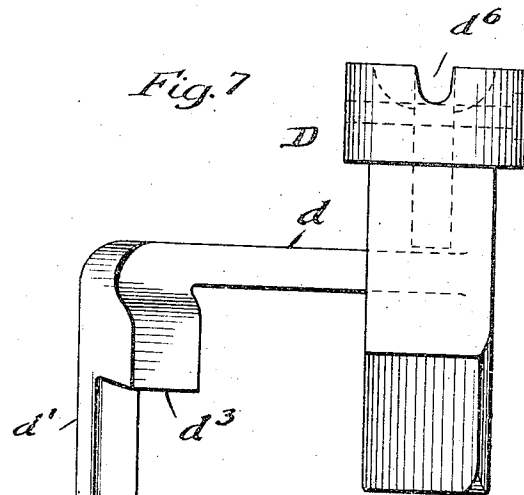
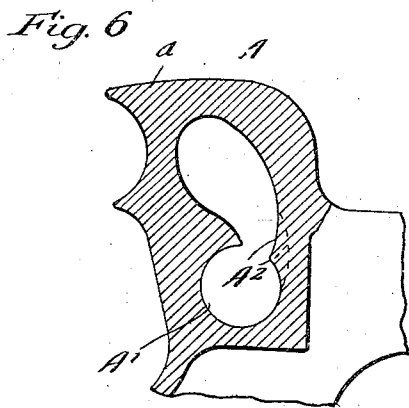
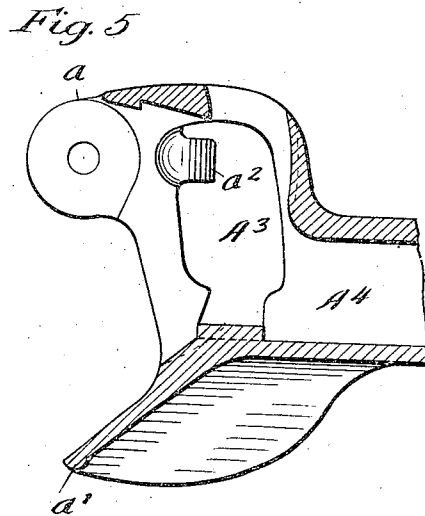
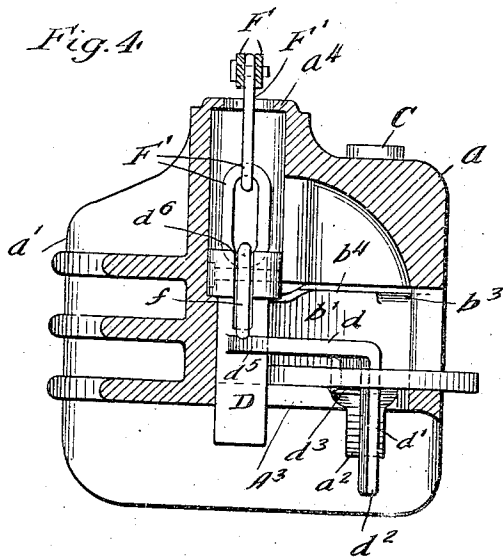
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

1,049,086.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GUSTAF A. HERMANSON, a citizen of the United States, residing at 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 improvements in car couplers.

10 The object of my invention is to provide a car coupler of the Master Car Builders' type of a simple, strong, efficient and durable construction, in which the lifting of the lock to the required extent will automati-
15 cally throw the knuckle open, in which the lifting of the lock will also operate to cause it to engage the rear arm or tail of the knuckle and set the lock in position for uncoupling; and in which, by the lowering of the lock, the lower link of the lifting chain
20 will serve as a means for preventing the lock from creeping.

My invention consists in the means I employ to practically accomplish this object
25 or result, as herein shown and described; that is to say, it consists, in connection with the drawhead and pivoted knuckle, of a vertically movable partially rotatable lock having a laterally projecting arm adapted to
30 engage the rear arm or tail of the knuckle to throw the knuckle open, the draw head having a cam or incline for rotating the lock as it is raised, and the laterally projecting arm of the rotatable lock having a lock set
35 ledge or shoulder adapted to engage the rear arm or tail of the knuckle to set the lock in position for uncoupling, the cam or incline on the draw head also serving to turn the lock into position to cause the
40 lock-set on the lock to positively engage the rear arm or tail of the knuckle, and the lock being provided at its upper end with a slot having an inclined bottom which operates
45 in conjunction with the lower link of the lifting chain to cause the end of said link to project under a shoulder on the draw head to prevent creeping of the lock when
it is in its lowermost position.

It further consists in a coupler having
50 a vertically movable lock furnished with a slot in its upper end to receive the lowermost link of the lifting chain, and a lifting chain having a link or device at its lower

end adapted to engage the draw head to prevent the lock from creeping.

55 It 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 drawing, forming a
60 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 parts in a different position; Fig. 3 is a horizontal section on
65 line 3—3 of Fig. 1; Fig. 4 is a vertical cross section on line 4—4 of Fig. 1; Fig. 5 is a detail horizontal section of the draw head on line 5—5 of Fig. 1, the knuckle and lock being removed; Fig. 6 is a detail sec-
70 tion of a portion of the draw head on line 6—6 of Fig. 1; Fig. 7 is an enlarged detail elevation of the lock; and Fig. 8 is a detail plan view of the lock.

In said drawing A represents the draw
75 head having the customary pivot arm *a* and guard arm *a*¹, B the knuckle having the customary front arm or nose *b* and rear arm or tail *b*¹, C the pivot pin, D the partially rotatable lock, F the operating lever and F¹
80 the lifting connection, preferably a chain, between the operating lever F and the lock D.

The draw head A has a round or cylindrical opening A¹ at its upper part for the
85 lock to vertically slide and rotate in. The draw head A is further provided with a cam or incline A², preferably of spiro-conical form for turning or rotating the lock on its axis as it is raised by engagement with
90 the laterally projecting arm *d* of the lock. The draw head A also has an opening A³ in its bottom web A⁴ for the lower end of the lock to pass through when the same is
95 in its lowermost position.

The rear arm or tail *b*¹ of the knuckle is
preferably furnished with a recess or opening *b*² for the depending finger or portion
100 *d*² of the laterally projecting arm *d* of the lock to pass through. The rear arm *b*¹ is also provided with a rounded or curved upper corner surface *b*³ adjacent and back of the lock set portion *b*⁴ thereof to facilitate
the dropping of the lock to place, and the draw head is also preferably provided with
105 an incline or cam-like projection *a*² at the

bottom web thereof which is adapted to engage the extreme lower end d^2 of the depending portion d^1 of the lock arm d to turn the lock into proper position as it descends to its lowermost position.

The laterally projecting knuckle throwing arm d of the lock D is provided with a lock set ledge or shoulder d^3 adapted to engage when the lock is partially raised, the rear arm or tail b^1 of the knuckle B at b^4 to set or support the lock in position on the tail of the closed knuckle so that the knuckle may subsequently swing open when the cars separate. The lateral or horizontally projecting arm d of the lock is preferably furnished with a rounded or curved heel d^5 for engagement with the knuckle throwing cam or incline A^2 on the draw head, this heel being nearer to the lock axis than is the lock-throwing finger. The cam or incline on the draw head operates by its engagement with the said heel d^5 to turn the lock on its axis and thus cause the lock to throw the knuckle open. This cam or incline on the draw head also positively turns the lock sufficiently before it is raised high enough to begin to throw the knuckle open to cause the lock set shoulder on the arm to overhang the rear arm or tail of the closed knuckle and thus positively insure the proper engagement of the lock set on the lock with the knuckle. The cam preferably only rotates the lock through part of a complete turn or rotation.

The cylindrical, rounded or trunnion-acting portion of the lock in cooperation with the cylindrical lock opening in the draw head insures the proper rotating movement of the lock to accomplish the lock set function and also to accomplish the knuckle throwing function when the lock is further raised. The lock opening A^1 in the draw head may have an integral flange a^4 on the draw head partially closing the same. The lock may be conveniently removed through the knuckle opening of the draw head, the knuckle being first removed.

The lifting chain or flexible connection F^1 between the lock D and the operating lever F cooperates to permit the lock to turn or rotate about its cylindrical or trunnion portion as a pivot as it is raised.

The lock D is provided at its upper end with a slot d^6 to receive the lowermost part

or link f of the lifting connection or chain F^1 . This slot d^6 has an incline or cam-acting bottom d^7 , and the lowermost lock-lifting part or link f of the lifting connection F^1 has a sliding or movable connection with the lock D, this being preferably effected by a removable pin d^8 in the lock D which passes through the lowermost link f of the lifting chain F^1 . The removable pin d^8 has a head d^9 which fits in the countersink or recess d^{10} in the lock D, so that the pin will form no external projection on the round or trunnion portion of the lock. This pin fits loosely in the lock and is held in position by the surrounding wall of the draw head.

As the lowermost part or link f of the lifting chain F^1 has a movable or sliding connection with the lock, it will be readily understood that when the lock is in its lowermost position and the lifting chain slack, the lower end of the link f will project out under the adjacent shoulder a^5 of the draw head, and thus cause the link f of the lifting chain to itself serve as a means to prevent the lock from creeping.

I claim:

In a car coupler, the combination of a draw head having a substantially vertical cylindrical bearing opening at its upper part and a cam surface for turning the lock as it rises, a knuckle pivoted in the draw head and having a tail forming a recess, a vertically sliding and partially rotatable lock having a trunnion portion at its upper end fitting and arranged to slide and turn in the said cylindrical bearing opening, and having a lateral arm arranged to engage the said cam surface to effect the turning of the lock, the arm being provided with a depending finger engaging in the said recess of the knuckle, the said lock having a lock-lifting part connected with and rotatable with the lock and slidable outward to engage beneath a portion of the draw head when the lock is in its knuckle-locking position, and a lifting connection for the said lock-lifting part with reference to which the lock-lifting part is rotatable on a vertical axis, substantially as set forth.

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Witnesses:

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