No. 833,434. PATENTED OCT. 16, 1906.

A. J. BAZELEY.

CAR COUPLING.

APPLICATION FILED DEC. 28, 1905.

5 SHEETS—SHEET 1.

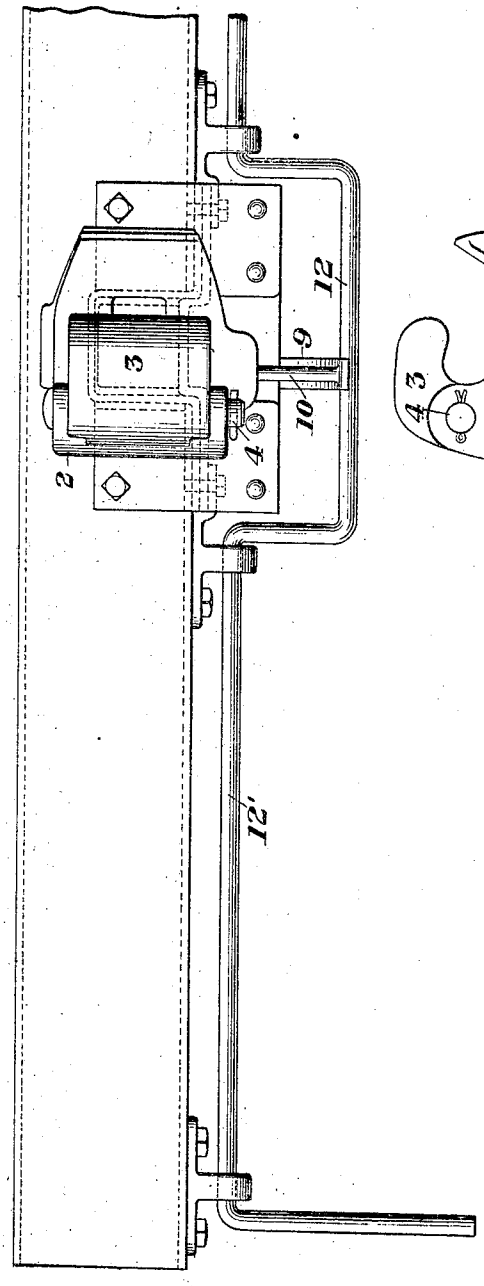


Fig. 1.

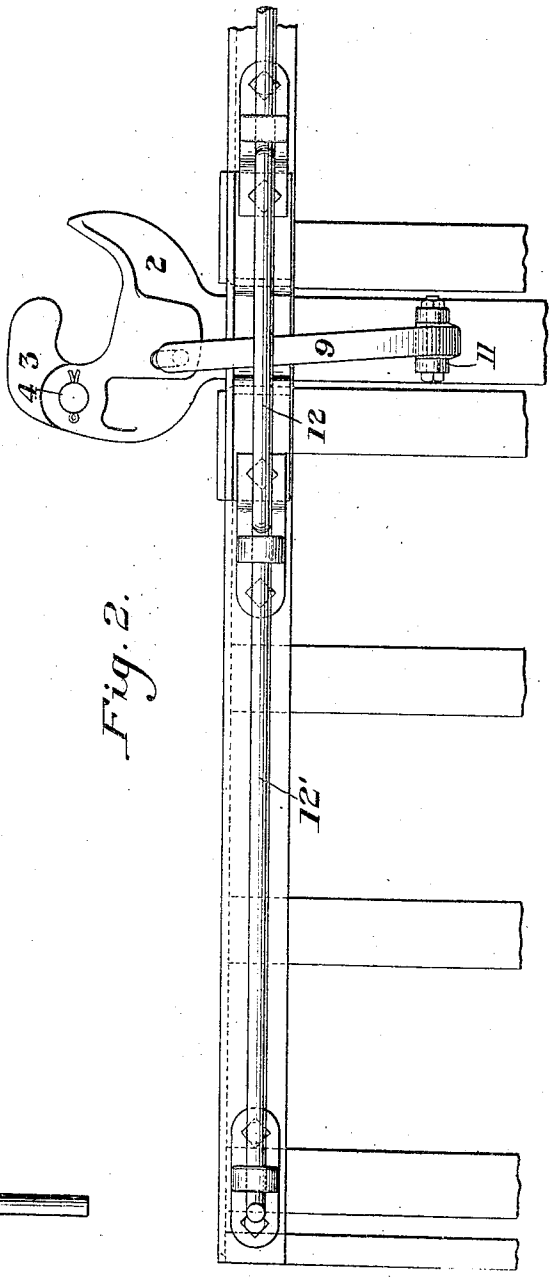


Fig. 2.

WITNESSES

A. N. Lewis.

Henry F. Pope

INVENTOR

Arthur J. Bazeley

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5 SHEETS—SHEET 2.

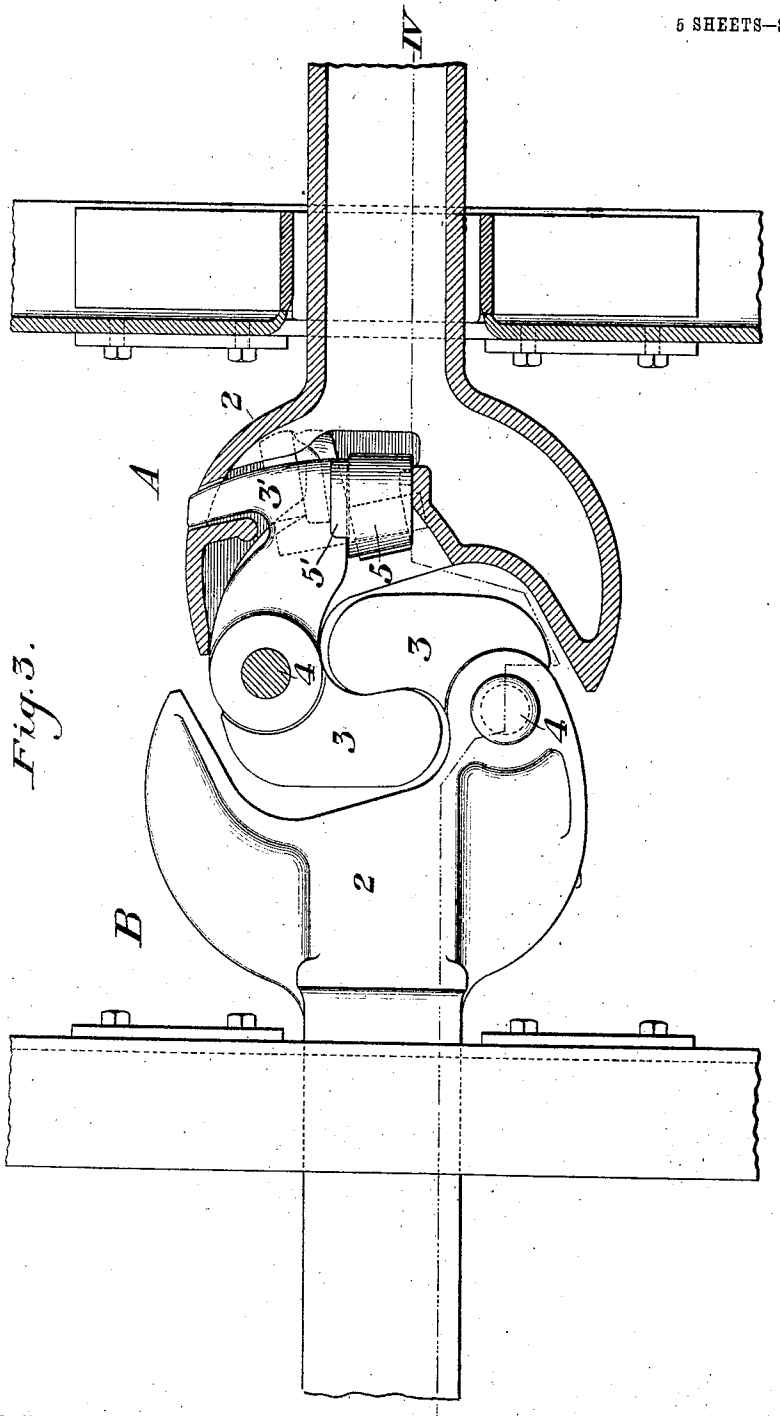


Fig. 3.

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A. N. Lewis

Henry F. Pope

INVENTOR

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5 SHEETS—SHEET 3.

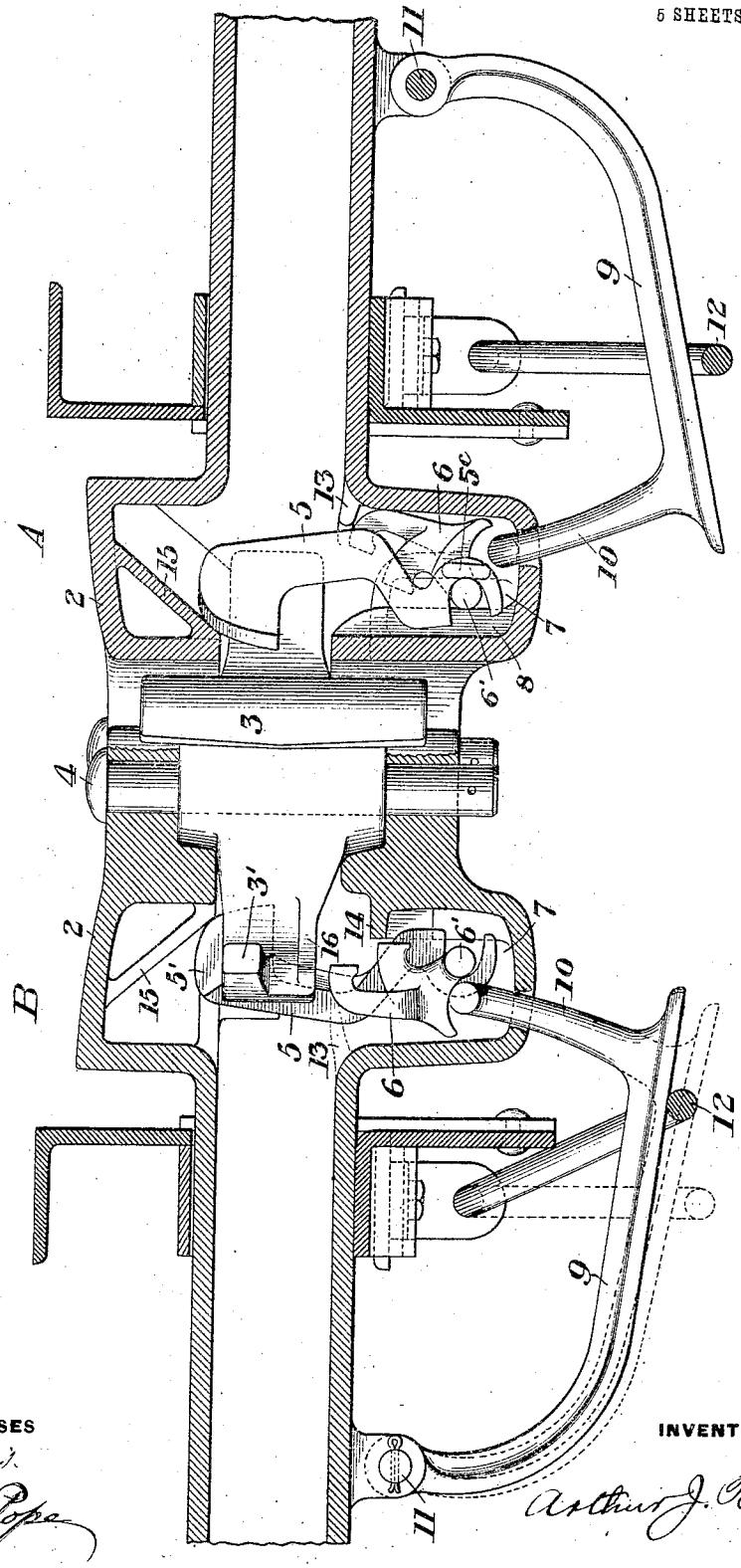


Fig. 4.

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A. H. Lewis.

Henry F. Pope

INVENTOR

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5 SHEETS—SHEET 4.

Fig. 5.

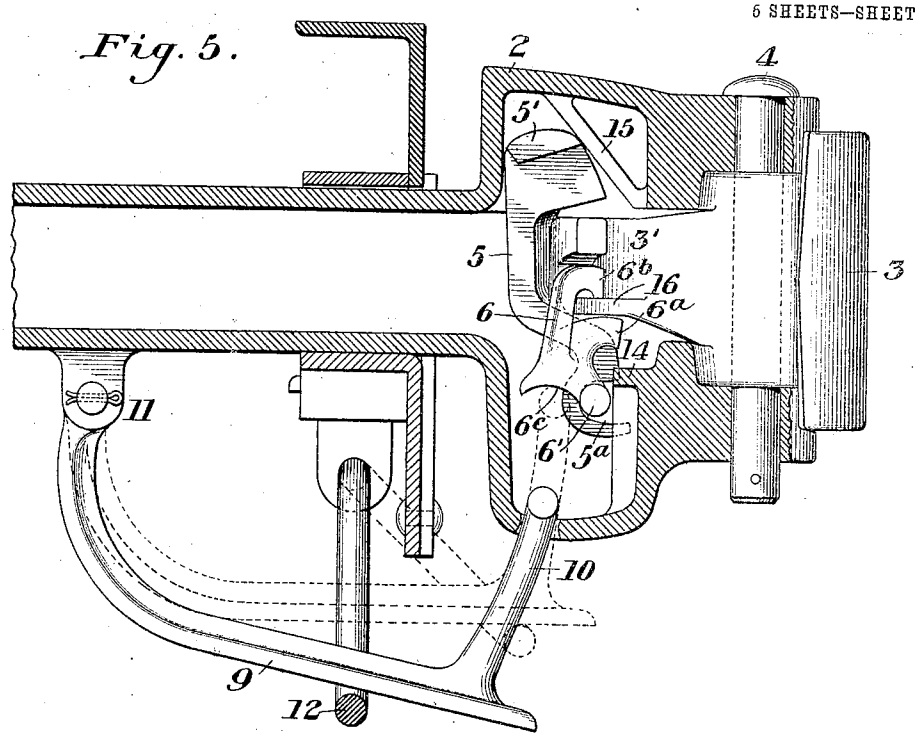
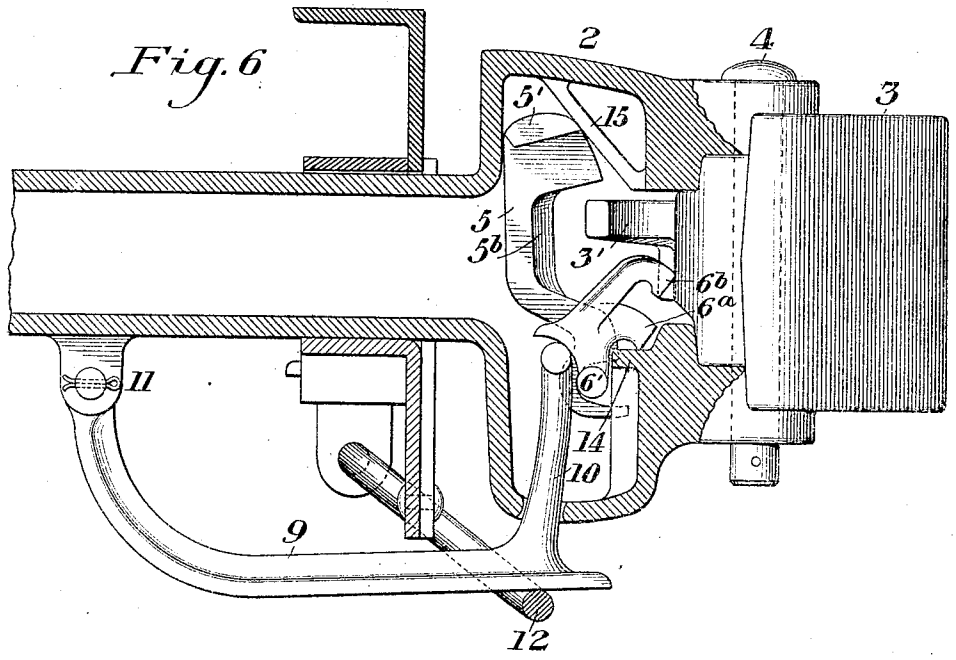


Fig. 6.



WITNESSES

A. N. Lewis

Henry J. Pope

INVENTOR

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5 SHEETS—SHEET 5.

Fig. 7.

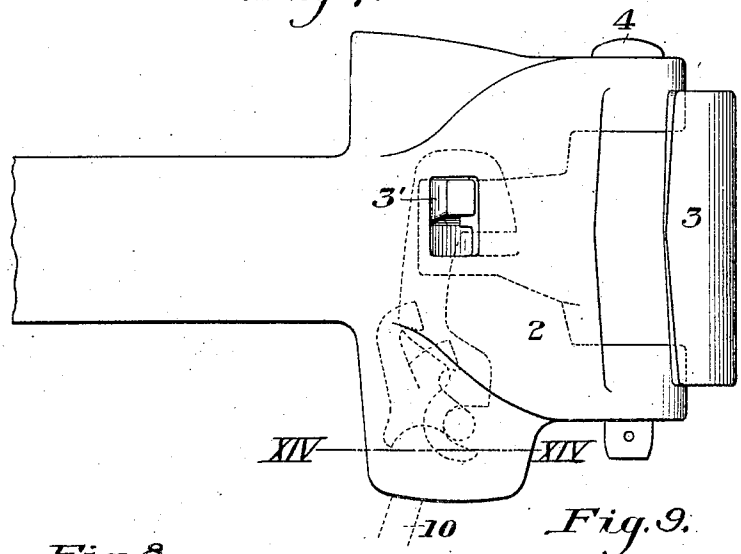


Fig. 8.

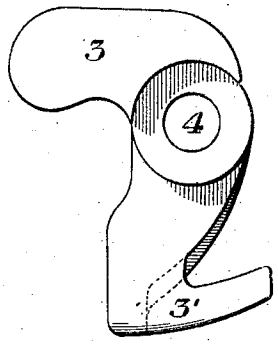


Fig. 9.

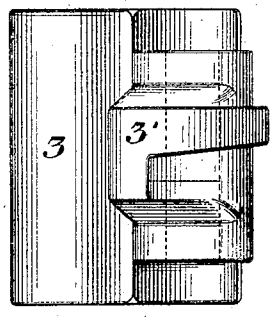


Fig. 10.

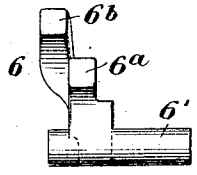


Fig. 11.

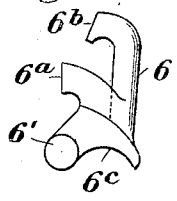


Fig. 12.

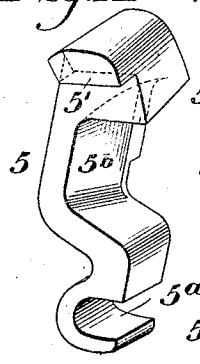


Fig. 13.

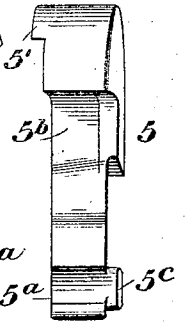
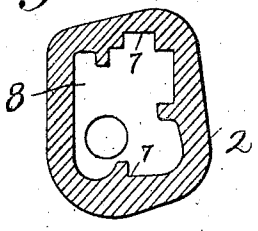


Fig. 14.



WITNESSES

R. A. Balderson.

Warren W. Swartz

INVENTOR

Arthur J. Bazeley

by Baxewell & Baynes

his Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR J. BAZELEY, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CAR-COUPLING.

No. 833,434. Specification of Letters Patent. Patented Oct. 16, 1906.

Application filed December 28, 1905. Serial No. 293,586.

To all whom it may concern:

Be it known that I, ARTHUR J. BAZELEY, of Cleveland, Cuyahoga county, Ohio, have invented a new and useful Car-Coupler, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation showing part of the end of a car with my coupler applied thereto. Fig. 2 is a bottom plan view. Fig. 3 is a view, on a larger scale, showing two of my couplers in coupled position, one of them being shown in plan and the other in horizontal section. Fig. 4 shows two of the couplers in coupled relation and in vertical section, the coupler A being in locked position and the coupler B showing the knuckle-throwing lever partially raised. Fig. 5 is a sectional view showing the lock raised and the coupler in lock-set position. Fig. 6 is a similar view showing the knuckle thrown open. Fig. 7 is a side elevation of the coupler-head, showing the opening through which the lock is tripped from lock-set position. Fig. 8 is a plan view of the knuckle. Fig. 9 is an end elevation thereof. Figs. 10 and 11 are respectively a plan view and side elevation of the lock-lifting lever, and Figs. 12 and 13 are views of the lock. Fig. 14 is a section on the line 14 14 of Fig. 7.

The purpose of my invention is to provide a coupler especially adapted for use with a lock-operating mechanism operating at the bottom of the coupler.

It is well known that it is difficult to devise a coupler which shall be compact and durable and fitted to withstand the rough usage to which it is subjected on the cars; but these requirements are fully satisfied by my present device, in which a strong construction with a powerful opening mechanism and efficient lock, lock-setting, and lock-locking appliances are provided.

In the drawings, 2 is the coupler-head.

3 is the knuckle, pivoted at 4, and 5 is the lock, the preferable form of which is shown in Figs. 12 and 13. It has a locking-head with a lateral projection 5′, adapted to engage the top of the knuckle-tail when the knuckle is locked and to hold it from dropping too far, or the lock may be otherwise supported by the knuckle. It has also at the base a hooked portion 5^a and an intermediate recessed portion 5^b, which affords clearance for the knuckle-tail when the lock is raised into unlocked position.

6 is a knuckle-throwing lever (shown in Figs. 10 and 11) having trunnions 6′, which fit within vertical guiding-grooves 7 in a recess 8 of the coupler-head and one of which passes through the hook 5^a, or the hook may be replaced by a simple hole, through which a bolt or shaft, inserted also through the lever 6, may pass. The hooked portion 5^a thus forms a supporting-journal for the knuckle-throwing lever. It has preferably also an intermediate stop projection 6^a and an upper knuckle-throwing projection 6^b. The lifting-lever 9 of the uncoupling mechanism has a finger 10, which extends up through a hole in the base of the coupler-recess 8 and is adapted to engage a portion 6^c of the lever 6. The uncoupling-lever 9 is preferably pivoted to the coupler-shank at 11, or it may be otherwise pivoted, and it is operated by a crank 12 on the uncoupling-rod 12′.

When the coupler is in locked position, as shown in Figs. 3 and 4, the lock 5 is in its lowest position with the projection 5′ resting on top of the knuckle-tail, the body of the lock being between the knuckle and the wall of the coupler, so as to hold it locked. The knuckle-throwing lever 6 is also in its lowest position and is tilted backward by gravity, so that its upper edge will rest underneath a shoulder 13 in the coupler-head, and will thus act as a lock to the lock, for it will restrain the lock from being jarred upwardly by the motion of the car. If, however, it is desired to unlock the coupler, the operator turns the uncoupling-rod, thus raising the finger 10, causing it to engage the lever 6, as shown at the coupler B in Fig. 4, raising it somewhat on its trunnions, so as to clear it from the shoulder 13. This forward tilting of the lever 6 is stopped by the engagement of the projection 6^a with a rib 14 on the coupler-head. If the finger 10 be further lifted, it will raise the lever 6 and with it the lock 5, to which the lever is connected by its trunnion, until the lock, being guided rearwardly by an inclined surface 15 on the coupler-head, is brought to the position shown in Fig. 5, in which the knuckle is unlocked. At this time the projection 6^b on the lever 6 will engage a shoulder 16 on the rear of the knuckle-tail, and if the uncoupling-rod be then released this en-

gagement of the shoulder with the projection will hold the lock in lock-set position, leaving the knuckle free to be swung open when it is drawn by movement of the car away from its companion coupler.

If it is desired to throw the knuckle fully open, the uncoupling-rod is turned, so as to lift the finger 10 to its full extent, causing the lever 6 to be turned forwardly on the axis of its trunnions, as shown in Fig. 6, and by bringing the projection 6^b into contact with the rear face of the knuckle-tail throwing the knuckle into its wide-open position. The construction is such that a very wide opening motion is imparted to the knuckle, and this is a decided advantage, as it puts the coupler in the best position for coupling.

When the uncoupling-rod is released, the lock 5 will drop until its head engages a projection 3′ at the rear of the knuckle-tail and is upheld thereby. When the knuckle is next swung back, as in the act of coupling, the knuckle-tail will pass from under the lock, which will then drop in front of the knuckle-tail into the position shown in Fig. 4 and will lock the coupling.

As shown in Figs. 4 and 14, I prefer to form on the side of the hooked portion 5^a of the lock, on the side next to the guard-arm of the coupler, a projection 5^c, which is adapted to enter a groove in the side wall of the coupler-head to keep the lock from moving back out of engagement with the trunnion of the lock-lifting lever 9. When the parts of the coupler are assembled, the knuckle-throwing lever is first placed in the recess 8 in the floor of the coupler-head, its trunnions entering the guiding-grooves 7, which are provided for them. The lock is then inserted, and when it is dropped to its lowest position its hooked portion is pushed forward to engage the trunnions of the lever 6. Both these parts are then raised, so that the lateral projection 5^c rises into its groove, which prevents the parts from becoming disengaged unless they are again dropped to their lowest position. When the knuckle is inserted, they cannot drop, because of the projection 5′ of the lock, which is above the knuckle.

As a convenient means of tripping the lock set when it is desired to release it, I prefer to enlarge the hole in the wall of the coupler-head through which the projection 3′ of the knuckle extends, as shown in Fig. 9, so as to afford an opening beneath the said projection through which the brakeman can insert a rod or other implement, and thus disengage the lever 6 from the shoulder on the knuckle.

Within the scope of my invention as defined in the claims changes may be made in the form and construction of the parts, since

I claim—

1. A coupler having a knuckle, an upwardly-moving lock; a knuckle-throwing lever journaled on the lock, and means for engaging the bottom of the lever to lift it, and thereby lift the lock.

2. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock, constructed to move in a substantially vertical plane, and means for engaging the bottom of the lever to lift it, and thereby lift the lock.

3. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock, having a projection adapted to engage the knuckle and to lock-set the lock, and means engaging the bottom of the lever to lift it, and thereby lift the lock.

4. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock, a shoulder on the coupler adapted to engage the lever when in its bottom position and to lock the lock, and means for lifting the lever and thereby lifting the lock.

5. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock by a trunnion and guided by a grooved portion of the coupler, and means for lifting the lever and thereby lifting the lock.

6. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock in a hooked supporting portion thereof, and means for lifting the lever and thereby lifting the lock.

7. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock, a shoulder by which the lever is restrained in its lower position, a stop portion on the lever adapted to limit its initial forward motion, a lock-setting projection on the lever, and means for lifting the lever and thereby lifting the lock.

8. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock, a shoulder by which the lever is restrained in its lower position, a lock-setting projection on the lever, and means for lifting the lever and thereby lifting the lock.

9. A coupler having a knuckle, an upwardly-movable lock having a head, an intermediate recessed portion, and a guiding-surface 15 on the coupler-head arranged to guide the head of the lock rearwardly.

10. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock, and a lifting-finger entering the bottom of the coupler-head and to engage the lever.

11. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing lever journaled on the lock and adapted to tilt rearwardly by gravity when the parts are in locked position.

12. A coupler having a knuckle, an upwardly-moving lock, a knuckle-throwing le-

ver journaled on the lock, a shoulder by which the lever is restrained in its lower position, a lock-setting projection on the lever, and means for lifting the lever and thereby lifting the lock, said lever being adapted to tilt rearwardly by gravity when the parts are in locked position.

13. A knuckle-throwing lever having trunnions, a projection 6^b and a stop portion adapted to engage the coupler-head to guide it in its upward movement.

14. A coupler-lock having a head with a lateral projection, an intermediate recessed portion, and a bottom hook.

15. A coupler-lock, a knuckle-throwing lever journaled therein, said lock having an engagement with the coupler-head to hold it in place relatively to the lever.

16. A coupler-lock, a knuckle-throwing lever with which it is loosely engaged, said lock having a projection engaging with a groove in the coupler-head to hold the lock in place relatively to the lever.

In testimony whereof I have hereunto set my hand.

ARTHUR J. BAZELEY.

Witnesses:
HENRY F. POPE,
HARRY E. ORR.