J. V. MUNGER.

CAR COUPLING.

APPLICATION FILED FEB. 24, 1909.

948,458.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

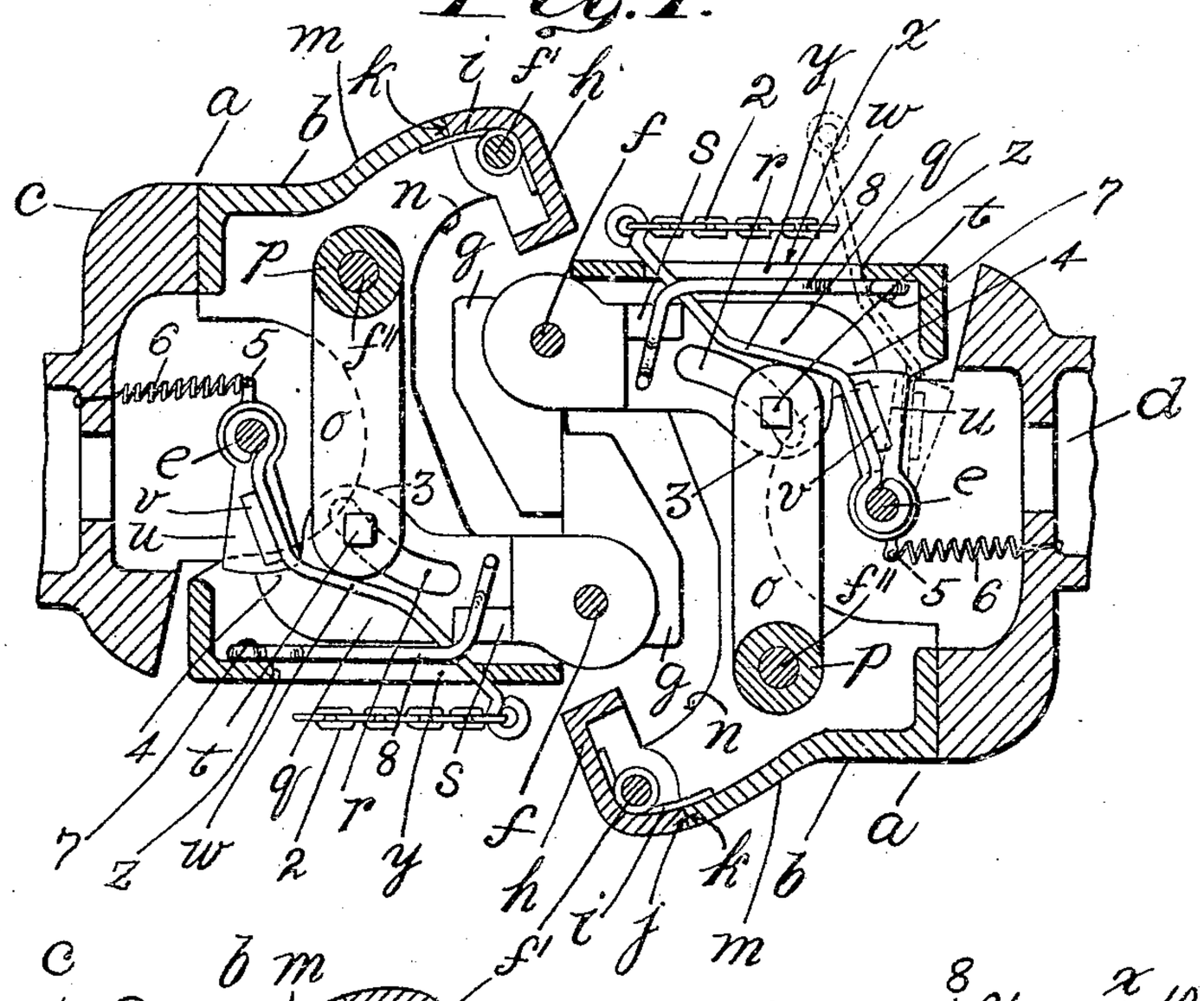
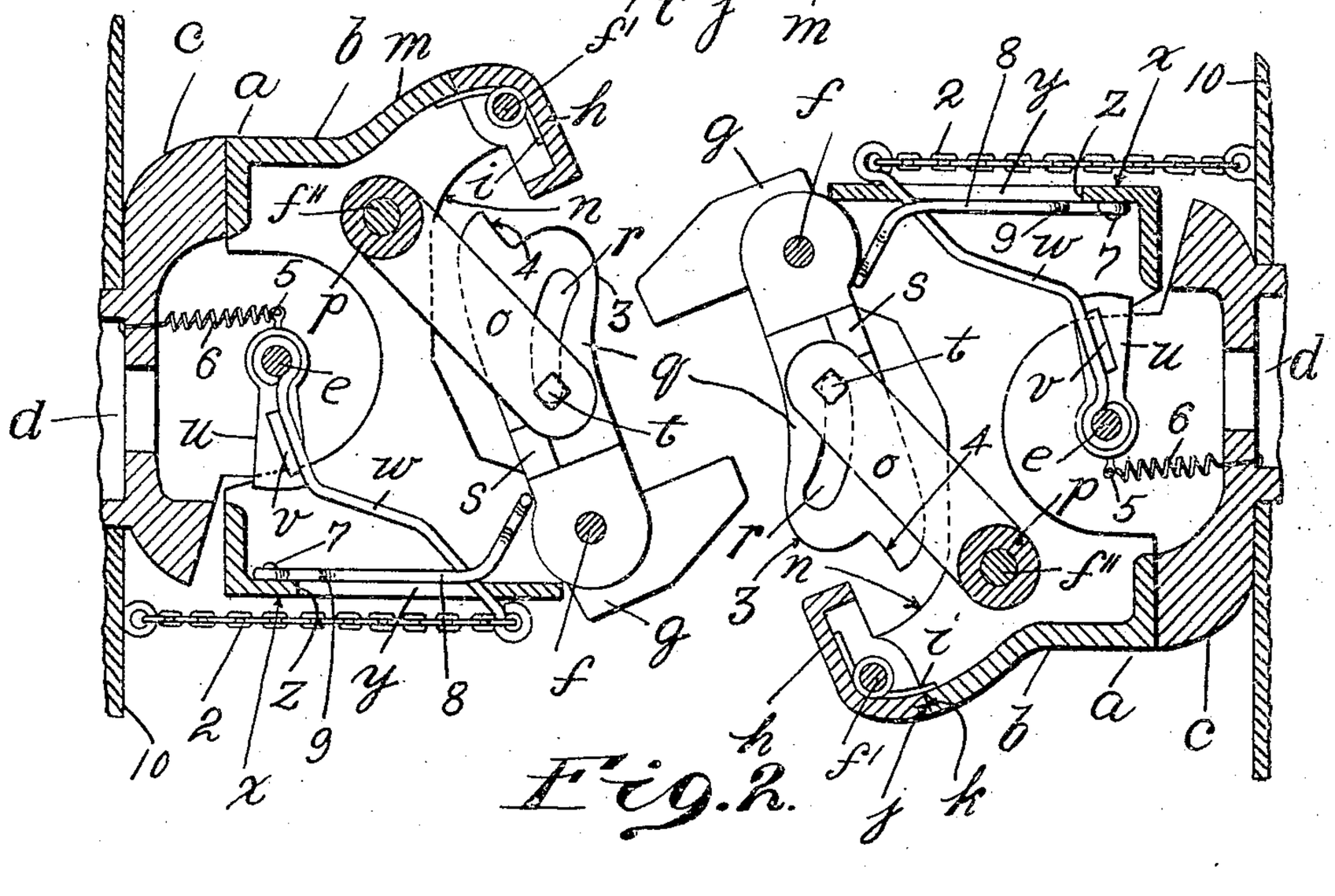



Fig. 2.




Witnesses:
M. Hamilton
M. E. Campion

James V. Munger Inventor

By his Attorney
James Hamilton

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2 SHEETS—SHEET 2.

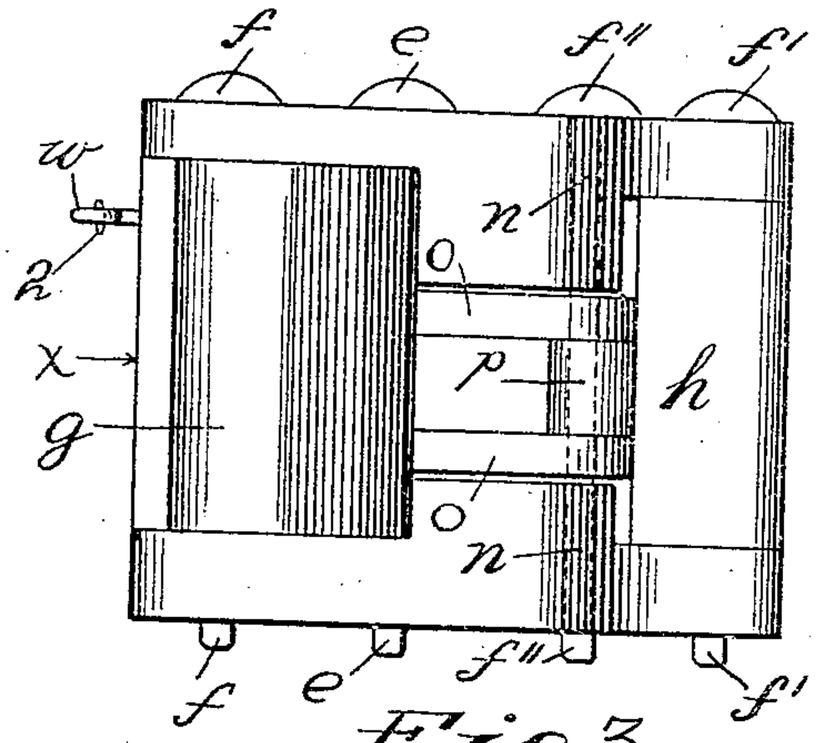


Fig. 3.

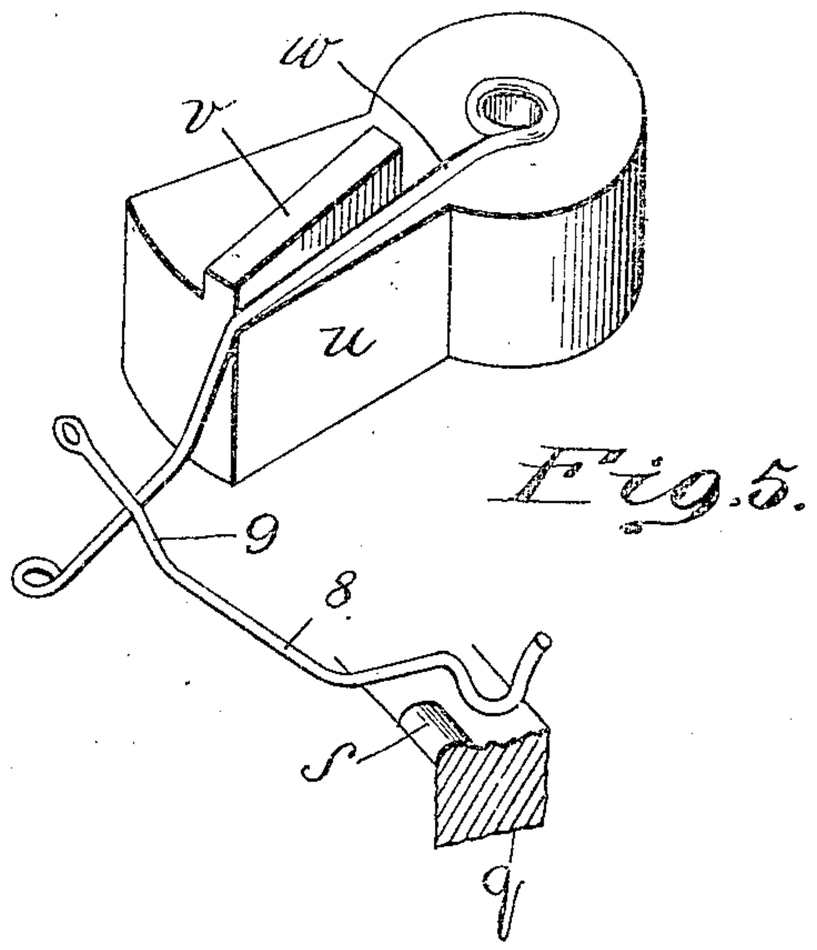


Fig. 5.

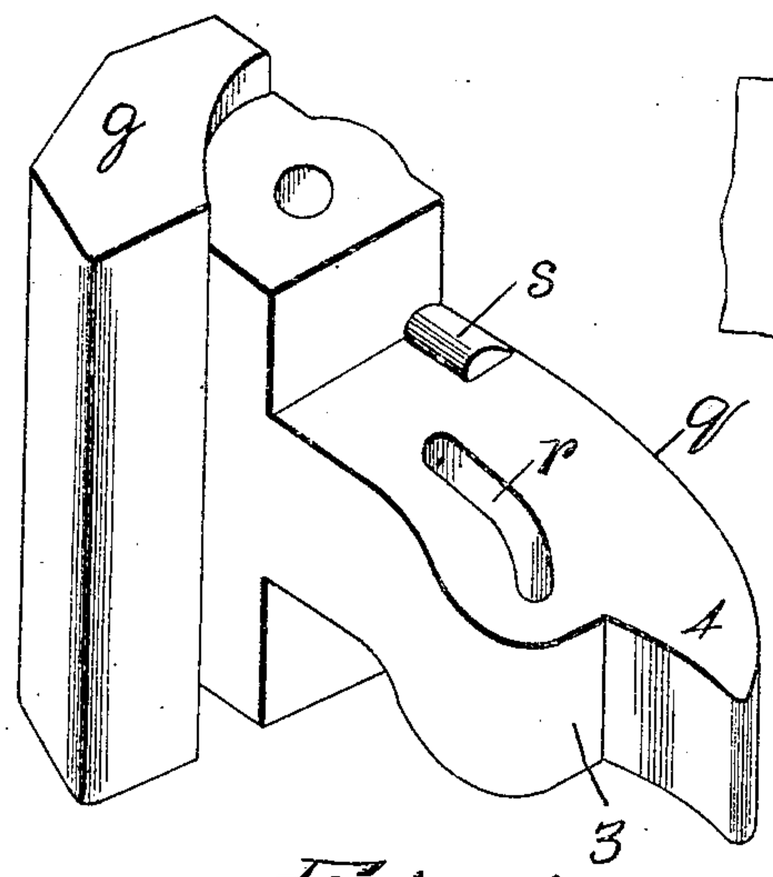


Fig. 4.

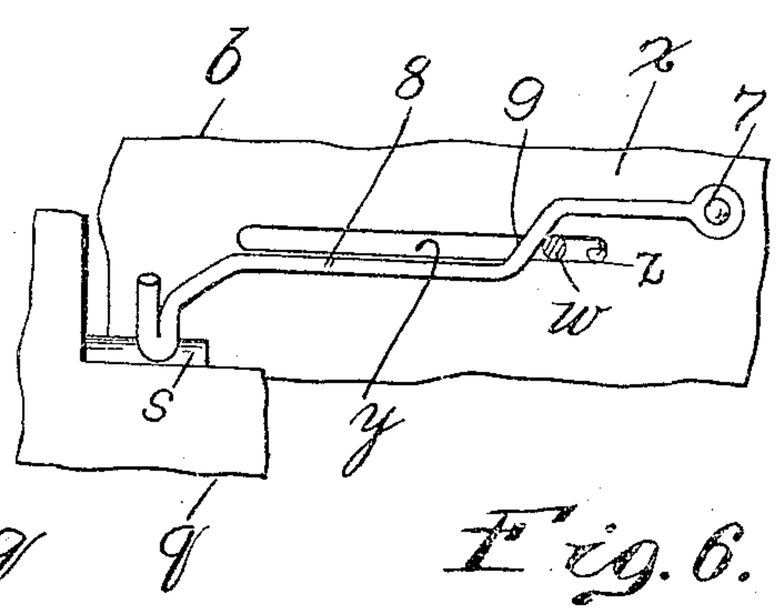


Fig. 6.

Witnesses:
M. Hamilton.
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James V. Munger Inventor
By his Attorney,
James Hamilton

# UNITED STATES PATENT OFFICE.

JAMES V. MUNGER, OF PORTLAND, NEW YORK, ASSIGNOR TO GEORGE H. DUNHAM, OF WARREN, PENNSYLVANIA.

## CAR-COUPLING.

948,458. Specification of Letters Patent. Patented Feb. 8, 1910.

Original application filed May 1, 1907, Serial No. 371,357. Divided and this application filed February 24, 1909. Serial No. 479,684.

*To all whom it may concern:*

Be it known that I, JAMES V. MUNGER, a citizen of the United States, residing at Portland, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Car-Couplers of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in car-couplers and particularly to mechanism for locking the pivotally-mounted knuckle or jaw with which automatic car-couplers are now so commonly provided; and an object of my invention is to provide a locking mechanism which will be simple in construction, comparatively cheap in manufacture and most efficient, reliable and durable in use.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, Figure 1 shows in horizontal section a pair of my new coupler-heads coupled together; Fig. 2 shows in horizontal section a pair of my new coupler-heads disengaged from each other; Fig. 3 is a front elevation of one of my new coupler-heads; Fig. 4 is a detail in perspective of the knuckle; Fig. 5 is a detail in perspective of the locking arm, the releasing lever and the detent; and Fig. 6 is a detail showing the way in which the pivoted detent rests upon the tail-piece or lock-plate of the knuckle.

The coupler-head *a* consists of two parts, the coupling-member *b* and the base-member *c*, the latter being formed integral with the drawbar *d*. The coupling-member *b* is connected with the base-member *c* by means of a connecting-pin *e* upon which the coupling-member *b* swings from side to side. At its front end at one side the coupling member *b* carries a hinge-pin or pivot-pin *f*, upon which is mounted free to swing the knuckle *g*. At the front end of the opposite side or cheek of the coupling-member *b* there is mounted free to swing upon the hinge-pin or pivot-pin *f'* the locking-guard *h*, which is thrown outwardly into locking position by the coil-spring *i*. The shoulder *j* on the locking-guard abuts against the shoulder *k* formed near the front end of the cheek *m* of the coupling-member *b* and thereby limits the outward swing of the locking-guard *h* under the influence of the coil-spring *i*. The locking-guard *h* may be forced inwardly toward the buffing-face *n* of the coupling-member against the tension of the coil-spring *i*. Near the cheek *m*, the coupling-member *b* carries a hinge-pin or pivot-pin *f''* upon which swings a pair of links *o* which are separated or held spaced apart by the spacing-sleeve or separator-sleeve *p* (Fig. 3). The knuckle *g* is formed with a lock-plate or tail-piece *q* in which is formed a curved slot *r* and upon which is formed a cam-lug *s*. Through the slot *r* extends vertically a connecting-pin *t* which is carried by the free ends or swinging ends of the links *o* and which connects the lock-plate *q* with the links *o*, so that the swinging of the latter actuates the knuckle *g*. Upon the connecting-pin *e* is mounted free to swing a sector-shaped locking-arm *u* formed on its top face with a rib *v*. Against the latter presses a releasing lever *w* fulcrumed on the connecting-pin *e* at its inner end and having its outer end extending through a slot *y* in the cheek *z* of the coupling-member *b*. The outer end of the releasing-lever *w* carries a chain 2, by which the lever may be manipulated.

The lock-plate or tail-piece *q* of the knuckle *g* is formed with a shoulder 3 and an ear 4; and against the latter is adapted to swing the outer end of a locking-arm *u*, the inner end of which carries an eye 5, to which is attached one end of the coil-spring 6, the other end of which is anchored in the base-member *c*. It is obvious that the coil-spring 6 tends to throw the locking-arm *u* outwardly.

Fastened at 7 on the inner face of the cheek *z* is a spring detent 8, the free end of which is bent, as shown in Figs. 1, 5 and 6, and normally rests upon the top face of the lock-plate *q*, near the cam-lug *s*. The detent 8 is further formed with a shoulder 9 against which bears the releasing lever *w*.

To uncouple, the releasing-lever *w* is pulled to the rear (or to the end *z* of the slot *y*) and into the dotted-line position shown in Fig. 1, the locking-arm *u* is forced against the tension of the coil-spring 6 inwardly from under the ear 4 of the lock-plate *q*, whereby the latter is released. This permits the knuckle *g* to be swung into uncoupled position, as shown in Fig. 2. As

the cam-lug *s* passes under the free end of the detent 8, the latter is raised so as to disengage the releasing-lever *w* from the shoulder 9 of the detent 8. The locking-arm *u* is now thrown to locking position by the tension of the coil-spring 6; and as the rib *v* presses against the releasing lever *w*, the latter is forced to the outer end of the slot *y* in the cheek *x*. The front wall of the slot *y* limits the travel of both the releasing-lever *w* and the locking-arm *u*.

In coupling, the knuckle of the opposing coupler-head collides with the lock-plate *q* and with the links *o* and thereby swings them inwardly. Thus, the lock-plate *q* and links *o* are restored to the position shown in Fig. 1; and under the influence of the coil-spring 6, the locking-arm *u* engages under the ear 4 and holds the knuckle locked. Should there be any relative movement between the drawbar *d* and the body 10 of the car, as in the case when the drawbar starts to pull out or become loosened from the body 10 of the car, the chain 2, one end of which is attached to the latter, will hold the outer end of the releasing-lever *w* and will thereby force the locking-arm inwardly from under the ear 4, whereby the knuckle *g* will become disengaged, thus uncoupling the cars before the drawbar *d* is pulled out. It is obvious that, since the releasing-lever *w* is free from attachment to the locking-arm *u*, the latter will, without moving the releasing-lever *w* be swung inwardly, by the ear *t* of the lock-plate *u*, as the knuckle *g* moves into coupled position (the position shown in Fig. 1).

This application is filed as a divisional application under my pending application, Serial No. 371,357, filed May 1, 1907.

I claim:

1. The combination with a coupling-member, of a knuckle mounted free to swing therein and formed with a lock-plate; a locking-arm mounted free to swing within said coupling-member and adapted to interlock with said lock-plate; a releasing-lever mounted free to swing in said coupling-member and adapted to bear against and release said locking-arm from engagement with said lock-plate, said releasing-lever being free from attachment to said locking-arm; and means for throwing said locking-arm into locking engagement with said lock-plate.

2. The combination with a coupling-member; of a knuckle pivotally mounted therein and formed with a lock-plate; a spring-controlled locking-arm pivotally mounted within said coupling-member and adapted to interlock with said lock-plate; a releasing-lever fulcrumed within said coupling-member and adapted to bear against and force said locking-arm out of engagement with said lock-plate, said releasing-lever being free from attachment to said locking-arm; and a detent for holding said releasing-lever in releasing position.

3. The combination with a coupling-member formed with a slot in one of its cheeks; of a knuckle pivotally mounted within said coupling-member and formed with a lock-plate; a spring-controlled locking-arm pivotally mounted within said coupling-member and adapted to interlock with said lock-plate; and a releasing-lever fulcrumed within said coupling-member and extending through said slot therein; said releasing-lever being adapted to bear against said locking-arm but free from attachment thereto.

4. The combination with a coupling-member formed with a slot in one of its cheeks; of a knuckle pivotally mounted within said coupling-member and formed with a lock-plate; a spring-controlled locking-arm pivotally mounted within said coupling-member and adapted to interlock with said lock-plate; a releasing-lever fulcrumed within said coupling-member and extending through said slot therein; and a detent for holding said releasing-lever in releasing position.

5. The combination with a coupling member; of a knuckle pivotally mounted therein and formed with a lock-plate; links which connect said lock-plate with said coupling member; a locking-arm pivotally mounted in said coupling-member and adapted to interlock with said lock-plate; a releasing-lever for forcing said locking-arm out of interlocking engagement with said lock-plate; and a detent for holding said releasing-lever in releasing position.

6. The combination of a base-member; a coupling-member; a connecting-pin which connects said members and upon which said coupling-member is normally free to swing; a knuckle pivotally mounted within said coupling-member and formed with a lock-plate; a locking-arm mounted free to swing on said connecting-pin and adapted to interlock with said lock-plate; and a releasing-lever for forcing said locking-arm out of engagement with said lock-plate.

7. The combination of a base-member; a coupling member; a connecting-pin which connects said members and upon which said coupling-member is normally free to swing; a knuckle pivotally mounted within said coupling-member and formed with a lock-plate; a locking-arm mounted free to swing on said connecting-pin and adapted to interlock with said lock-plate; a releasing-lever for forcing said locking-arm out of engagement with said lock-plate; and a detent for holding said releasing-lever in releasing position.

8. The combination of a base-member; a coupling-member; a device by which said

members are connected together free to swing relatively to each other; a knuckle mounted free to swing relatively to said coupling-member; a locking-arm mounted free to swing upon said device and adapted to interlock with said knuckle to hold the latter in coupled position; and means for forcing said locking-arm out of engagement with said knuckle, said means being free from attachment to said locking-arm.

9. The combination of a coupling-member; a knuckle mounted free to swing relatively thereto and formed with a cam-lug; a locking-arm mounted in said coupling-member free to swing in a plane parallel to the plane in which swings said knuckle, said locking-arm being adapted to interlock with said knuckle to hold the latter in coupled position; a device for moving said locking-arm out of engagement with said knuckle; and means for holding said device in adjusted position, said means being adapted to be moved into releasing position by said cam-lug, when said knuckle is swung.

10. The combination of a coupling-member; a knuckle mounted free to swing relatively thereto; a spring-controlled locking-arm mounted in said coupling-member free to swing in a plane parallel to the plane in which swings said knuckle, said locking-arm being adapted to interlock with said knuckle to hold the latter in coupled position; and a releasing lever mounted free to swing in said coupling-member independently of said locking-arm and to bear against the latter to move it out of engagement with said knuckle.

In testimony whereof I have hereunto set my hand at said Portland this twentieth day of February, A. D. 1909, in the presence of the two undersigned witnesses.

JAMES V. MUNGER.

Witnesses:

T. W. CROSBY,

B. FRANK SMITH.