J. V. MUNGER.

CAR COUPLING.

APPLICATION FILED MAY 1, 1907.

948,399.

Patented Feb. 8, 1910.

3 SHEETS—SHEET 1.

Fig. 1

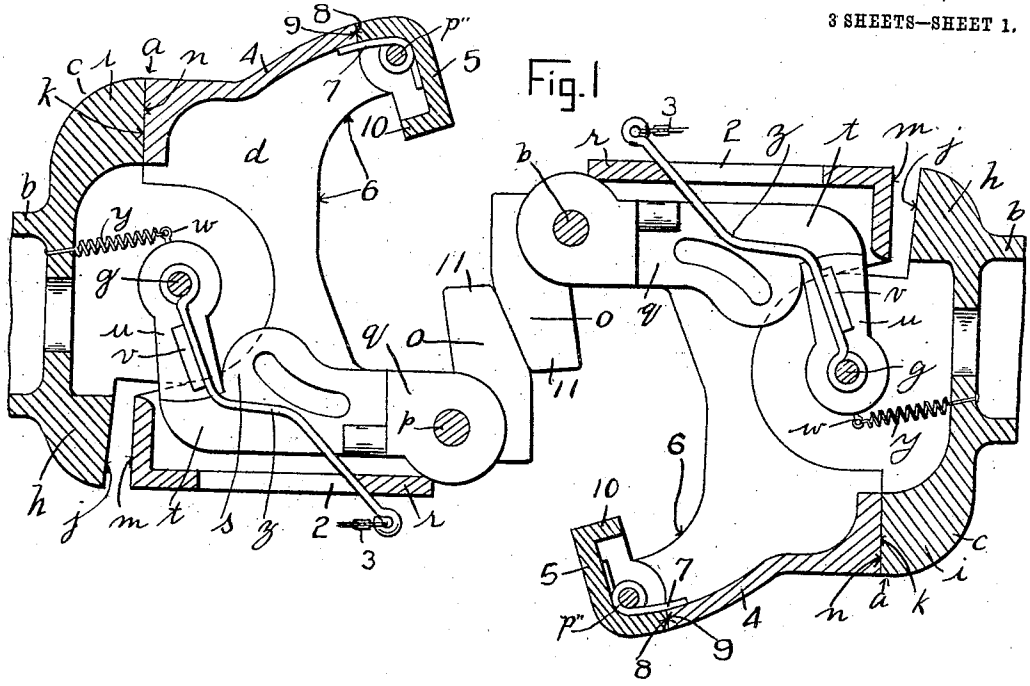
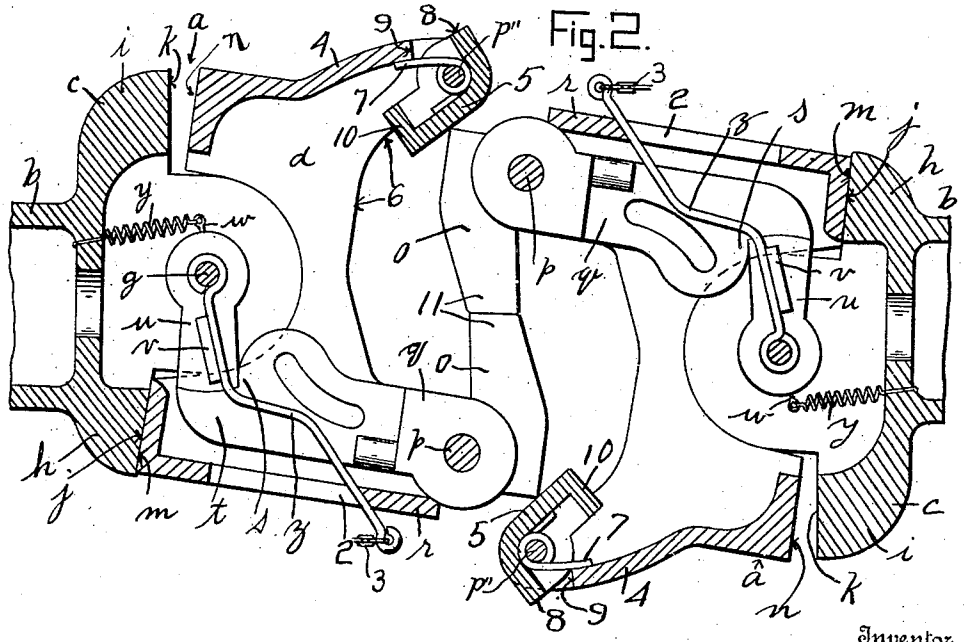


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

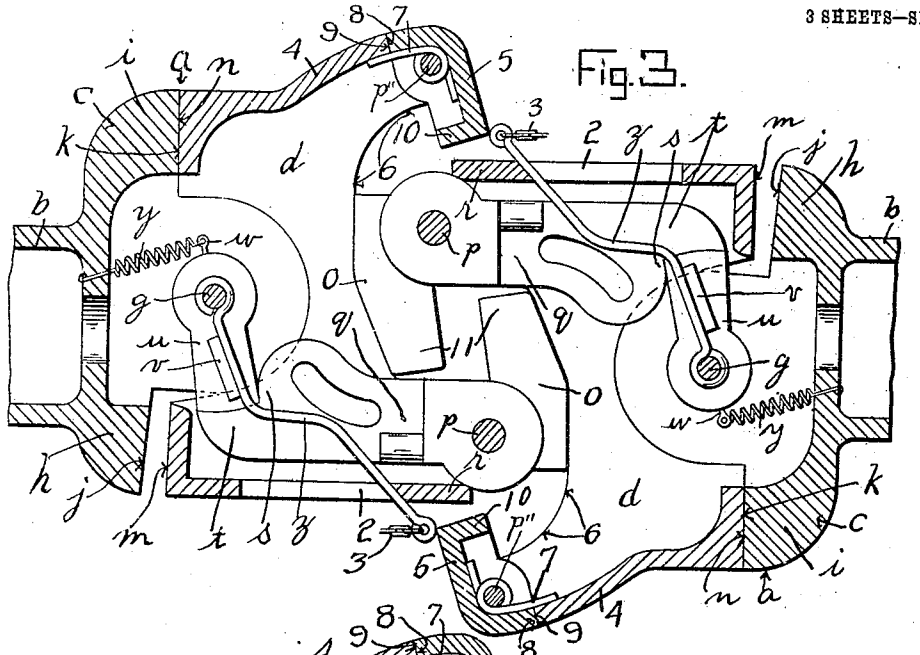
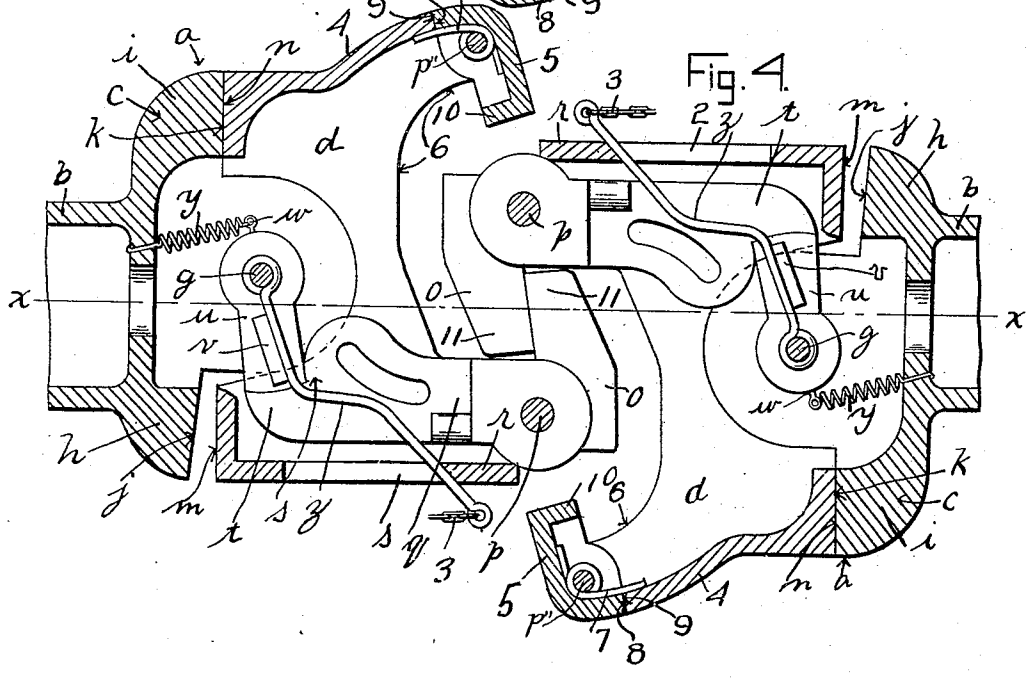


Fig. 4.



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3 SHEETS—SHEET 3.

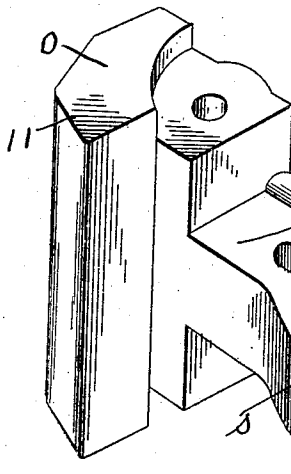

Fig. 5.

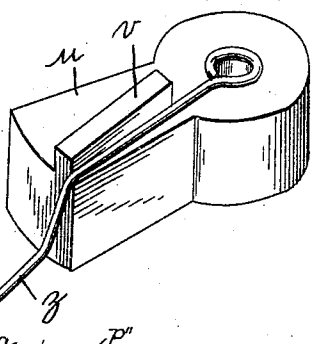

Fig. 6.

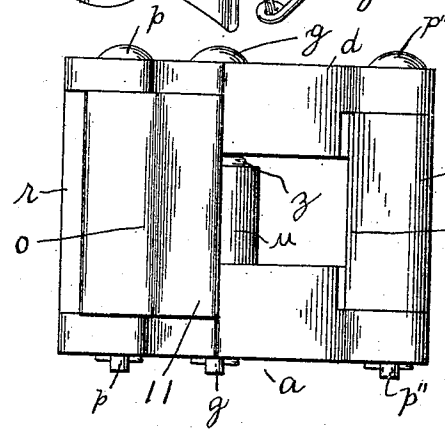

Fig. 7.

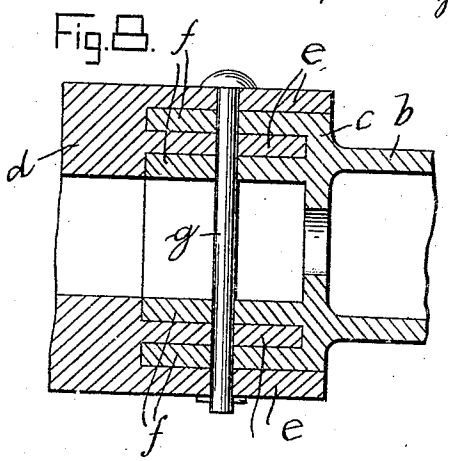

Fig. 8.

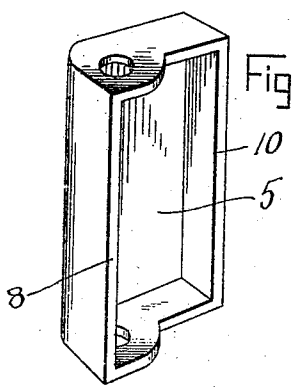

Fig. 9.

Witnesses

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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

948,399. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed May 1, 1907. Serial No. 371,357.

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; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in car-couplers and particularly to that portion of a car-coupler known as the coupler-head or draw-head; and an object of my invention is to provide a coupler-head made of two parts which are connected pivotally, one of which is carried by the draw-bar and the other of which is provided with a pivoted knuckle and with a pivoted locking-guard opposite the latter.

Another object of my invention is to provide a coupler-head having locking mechanism by which the coupler-head is maintained in coupled position positively and securely held locked to its coöperating coupler-head.

A third object of my invention is to provide a coupler-head having mechanism which permits it to couple with a coöperating coupler-head as readily on a curved as on a straight portion of the track.

A further object of my invention is to provide a coupler-head which is particularly well adapted to couple with a coöperating coupler-head without unlocking the knuckles or jaws of the coupler-head before or during the operation of coupling; that is, to couple with the jaws or knuckles maintained in a locked position throughout the coupling operation.

Other features of my invention will be described hereinafter.

In carrying out my invention, I provide a coupler-head made of two parts one of which carries pivotally fastened thereto on opposite sides of the line of draft a knuckle and a locking-guard and swings relatively to the other upon a connecting-pin out of the line of draft. The arc through which the swinging part or coupling-member of the coupler-head may turn on the base-member or drawbar-member of the coupler-head is limited by shoulders or ledges formed on the last-named member and lying on opposite sides of the line of draft, in non-parallel planes. That one of these shoulders which is on the same side of the line of draft as is the connecting-pin lies in a plane at substantially right angles to the line of draft. The pivot of the knuckle or jaw of the coupler-head is on the side of the line of draft opposite from the connecting-pin. The result of this arrangement of parts is that, when the opposing locked knuckles come together or collide in the operation of coupling, they move first away from each other transversely of the coupler-head; for, the force or shock of the impact between the colliding coupler-heads causes the coupling-members of the latter to swing outwardly in opposite directions and away from each other. This swinging movement of the coupling-members carries the locking-guard of each toward the knuckle or jaw of the opposing coupler-head; and when the knuckle or jaw collides with or strikes against the locking-guard of the opposing coupling-member, the locking-guard is swung inwardly and thereby allows the knuckle or jaw to pass into the throat or opening and to strike against the buffing face of the coupling-member. By striking against the buffing face of the coupling-member, the knuckle causes the latter to oscillate or rock on its connecting-pin in a direction opposite to that of its first swinging or turning movement and thereby to carry the knuckles or jaws into locking engagement with each other. At the same time the locking-guards are made free to swing outwardly into locking position, where they positively hold the knuckles from moving out of the locking engagement into which they have just entered.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, Figure 1 is a view in section showing a pair of my new coupler-heads as they collide with the knuckles locked; Fig. 2 is a view in section showing another position of the coupler-heads, the coupling-members of the latter having swung on their connecting-pins and the knuckles being about to pass; Fig. 3 is a view in section showing a third position of the coupler-heads, the coupling-members of the latter having swung into their original position again and the knuckles being thereby carried into locking engagement; Fig. 4 is a view in section showing the knuckles in locking engagement

and under draft; Fig. 5 is a perspective view of the knuckle; Fig. 6 is a perspective view of the locking arm; Fig. 7 is a front view of my new coupler-head; Fig. 8 is a detail in section showing the connection between the base-member and the coupling-member of the coupler-head; and Fig. 9 is a detail in perspective of the locking guard.

The two-part coupler-head *a* is carried by the drawbar *b* to which the base-member or drawbar-member *c* of the coupler-head is rigidly attached, as by being formed integral with it. The swinging part or coupling-member *d* of the coupler-head *a* is formed with two spaced centrally-disposed rearwardly-extending tongues *e* at the top and the bottom of its rear portion, while the front portion of the stationary base-member *c* is formed at its top and bottom with the centrally-disposed forwardly-extending tongues *f*. The latter and the tongues *e* are substantially semicircular in shape and fit slidably upon one another; and through them passes a central connecting-pin *g* upon which the coupling-member *d* rocks or oscillates. The base-member *c* is formed with integral vertical cheek-pieces *h*, *i* each having a shoulder or ledge at its front. The shoulder *j* of the cheek-piece *h* lies in a plane which, while vertical, yet is inclined to the line of draft *x*—*x* and to the plane of the shoulder *k* of the cheek-piece *i*. The shoulder *k* is in a plane which is at substantially right angles to the line of draft. The coupling-member *d* is formed in rear with the shoulders *m*, *n* of which one lies at each side of the tongues *e*. The shoulder *j* is opposed to the shoulder *m*, while the shoulder *k* is opposed to the shoulder *n*, whereby the shoulders *j*, *m* serve to limit the swinging movement of the coupling-member *d* in one direction, and the shoulders *k*, *n* serve to limit its swinging movement in the opposite direction. The shoulders *k*, *n* lie on the same side of the line of draft *x*—*x* as does the connecting-pin *g*, while the shoulders *j*, *m* lie on the opposite side of that line.

At its front end the coupling-member *d* carries a knuckle or jaw *o* mounted free to swing or turn upon a pivot-pin *p* and formed with a rearwardly-extending integral lock-plate *q* which lies in its locked position along the inner face of the cheek *r*. The inner free end of the lock-plate *q* is formed with a shoulder *s* and an ear *t*.

Mounted free to swing upon the connecting-pin *g* is a sector-shaped locking-arm *u* formed with a rib *v* on its top face and provided with an eye *w* to which is attached one end of a coil-spring *y* the other end of which is anchored in the base-member *c*. The coil-spring *y* tends to throw, by its resilient action, the free end of the locking-arm *u* under the ear *t* and against the shoulder *s* of the lock-plate *q* of the knuckle or jaw *o*. Against the rib *v* bears a releasing-lever *z* fulcrumed on the connecting-pin *g* and extending through a slot 2 in the cheek *r*. To the outer end of the releasing-lever *z* is attached a chain 3 by which the releasing-lever *z* may be swung against the tension of the coil-spring *y* to force the locking-arm *u* inwardly and from under the ear *t*, whereby the knuckle or jaw *o* is made free to swing on its pivot-pin *p*.

At the front end of the cheek 4 of the coupling-member *d* there is pivoted a locking-guard 5 which is free to swing inwardly toward the buffing face 6 of the coupling-member *d* against the tension of a coil-spring 7 and the outward swing of which is limited by a shoulder 8 adapted to bear against the shoulder 9 formed on the cheek 4 of the coupling-member *d*. The locking-guard 5 is formed with a nose 10 which projects inwardly and the knuckle *o* is formed with a nose 11 which extends inwardly and lies practically in line with the nose 10 of the locking-guard 5, when the latter is in locking position and the knuckle or jaw *o* is locked by the locking-arm *u*.

Assuming the parts to be in the position shown in Fig. 1 and the knuckles or jaws *o* of the opposing coupler-heads locked, the force of the impact between the colliding knuckles *o* in coupling is sufficient to throw the coupling-members *d* outwardly on their pivots, the connecting-pins *g*. This outward swing of the coupling-members carries the jaws *o* of the opposing coupler-heads *a* away from each other, each jaw moving transversely across the face of the opposing coupling-member and into contact with the locking-guard 5 of the latter. The blow delivered by the knuckle *o* upon the locking-guard 5 is sufficient to bend the later inwardly, against the tension of the coil-spring 7 (see position of parts in Fig. 2). The yielding of the locking-guards 5 permits the knuckles *o* to strike against the buffing-faces 6 of the opposing coupling-members *d* and thereby to swing the latter upon their pivots *g* inwardly. Thus, the knuckles *o* are thrown into locking engagement with each other, as shown in Fig. 3. The locking-guards 5 are freed and under the influence of their coil-springs 7 swing outwardly from the buffing-faces 6 into locking position and securely hold the knuckles *o* from becoming disengaged.

I am fully aware of the patent granted John C. Look March 21, 1893, No. 493,933, and disclaim all that is therein shown. The heel of the guard B of the aforesaid patent is formed with a cam which coöperates with a cam on the head of the locking-pin R to raise the latter during the operation of coupling and thereby to release the knuckle E. Therefore, it was never contemplated by the

patentee, John C. Look, to provide a car-coupler the construction of which would allow or enable the coupling operation to be performed with the knuckles held locked against movement. Further, the coupling-member of the aforesaid patent is rigidly held upon the outer end of the drawbar A by being formed integral therewith. In my new car-coupler hereinbefore described the coupling-member is mounted free to swing relatively to the drawbar and this freedom to swing is provided in order particularly to adapt my new car-coupler for coupling with the knuckles thereof locked against movement. I am further fully aware of the following-named patents: No. 644,384, granted Edwin C. Washburn February 27, 1900; No. 649,991, granted Louis Lecompte May 22, 1900; and No. 710,929 granted William Wright October 7, 1902; and I hereby disclaim everything shown in each and every of said patents. In my new car-coupler hereinbefore described I provide as an essential part thereof a locking-guard, by which is herein meant an element which holds interlocked the knuckles or jaws by preventing the latter from moving laterally out of engagement with each other. In none of the three last-named patents is there shown or described a locking-guard pivotally mounted at the side of the coupling-member opposite from the knuckle.

I am well aware that it is well within the skill of the art to make mechanical changes in the construction hereinbefore described and shown in the accompanying drawings, without departing from the spirit of my invention; and I therefore desire to be understood as claiming my invention in the broadest legally permissible manner.

I claim:

1. The combination with a drawbar; of a coupling-member mounted free to swing relatively thereto; a knuckle mounted at one side of said coupling-member; and a locking-guard pivotally mounted at the opposite side of said coupling-member.

2. The combination with a drawbar; of a coupling-member mounted free to swing relatively thereto; a knuckle mounted at one side of said coupling-member; a locking-guard pivotally mounted at the opposite side of said coupling-member; and a locking device for said knuckle.

3. The combination with a drawbar; of a coupler-head consisting of a base-member carried by said draw-bar and a coupling-member mounted free to swing on said base-member; a knuckle mounted at one side of said coupling-member; and a locking-guard pivotally mounted at the opposite side of said coupling-member.

4. The combination with a drawbar; of a coupling-member mounted free to swing relatively thereto; a knuckle mounted at one side of said coupling-member; a locking-guard mounted at the other side of said coupling-member free to swing inwardly toward the buffing face thereof; and means which limit the outward swing of said locking-guard.

5. The combination with a drawbar; of a coupling-member mounted free to swing relatively thereto; a knuckle mounted at one side of said coupling-member; and a locking-guard mounted at the other side of said coupling-member free to swing inwardly toward the buffing face thereof; said locking-guard and coupling-member being formed with shoulders which coöperate to limit the outward swing of said locking-guard.

6. The combination with a drawbar; of a coupling-member mounted free to swing relatively thereto; a knuckle mounted at one side of said coupling-member; a locking-guard pivotally mounted at the other side of said coupling-member; and means for maintaining said locking-guard in its locking position.

7. The combination with a drawbar; of a coupling-member mounted free to swing relatively thereto and formed with shoulders which limit its swinging movement; a knuckle mounted at one side of said coupling-member; and a locking-guard pivotally mounted at the opposite side of said coupling-member.

8. The combination with a drawbar; of a coupling-member mounted free to swing relatively thereto; means for limiting the swinging movement of said coupling-member; a knuckle mounted at one side of said coupling-member; and a locking-guard pivotally mounted at the opposite side of said coupling-member.

9. The combination with a drawbar; of a coupler-head consisting of a base-member carried by said drawbar and a coupling-member mounted free to swing on said base-member, the latter and said coupling-member being formed with shoulders which coöperate to limit the swinging movement of said coupling-member; a knuckle mounted at one side of said coupling-member; and a locking-guard pivotally mounted at the opposite side of said coupling-member.

10. The combination with a drawbar; of a coupling-member; a connecting-pin by which said coupling-member is attached to said drawbar and upon which said coupling-member is free to swing relatively thereto; a knuckle mounted at one side of said coupling-member; and a locking-guard pivotally mounted at the opposite side of said coupling-member; said connecting-pin lying out of the line of draft.

11. The combination with a drawbar; of a coupler-head consisting of a base-member carried by said drawbar and a coupling-member mounted free to swing on said base-member; a connecting-pin which attaches

said coupling-member to said base-member and upon which said coupling-member is free to swing relatively to said base-member, said connecting-pin being out of the line of draft; a knuckle mounted on said coupling-member at one side thereof; and a locking-guard mounted pivotally at the opposite side of said coupling-member.

12. The combination with a drawbar; of a coupler-head consisting of a base-member carried by said drawbar and a coupling member mounted free to swing on said base-member; a connecting-pin which attaches said coupling-member to said base-member and upon which said coupling-member is free to swing relatively to said base-member, said connecting-pin being out of the line of draft and said base-member and coupling-member being formed with shoulders which coöperate to limit the swinging movement of said coupling-member on said base-member; a knuckle mounted at one side of said coupling-member; and a locking-guard mounted pivotally at the other side of said coupling-member.

13. The combination with a drawbar; of a coupling-member connected pivotally thereto at a point out of the line of draft and having a limited swinging movement relatively to said drawbar; a knuckle mounted at one side of said coupling-member; and a locking-guard mounted pivotally at the opposite side of said coupling-member; said limited swinging movement carrying said knuckle away from the coöperating knuckle of an opposing coupling-member toward the locking-guard thereof and then in the opposite direction away from the last-named locking-guard toward the said coöperating knuckle and into locking engagement therewith.

14. The combination of a pair of drawbars; a coupling-member mounted on each of said drawbars free to swing relatively thereto around a center out of the line of draft; a knuckle mounted on each of said coupling-members; and a locking-guard mounted pivotally on each of said coupling-members opposite said knuckle; said coupling-members by their swinging movement first carrying said knuckles away from each other to permit the knuckles to enter each between the knuckle and the locking-guard of the opposing coupling-member and then in the opposite direction to bring said knuckles into locking engagement.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES V. MUNGER.

Witnesses:
JOHN L. FLETCHER,
EDGAR M. KITCHIN.