(No Model.) 2 Sheets—Sheet 1.

# J. M. McMASTER.

## CAR COUPLING.

No. 502,375. Patented Aug. 1, 1893.

Fig. 1.

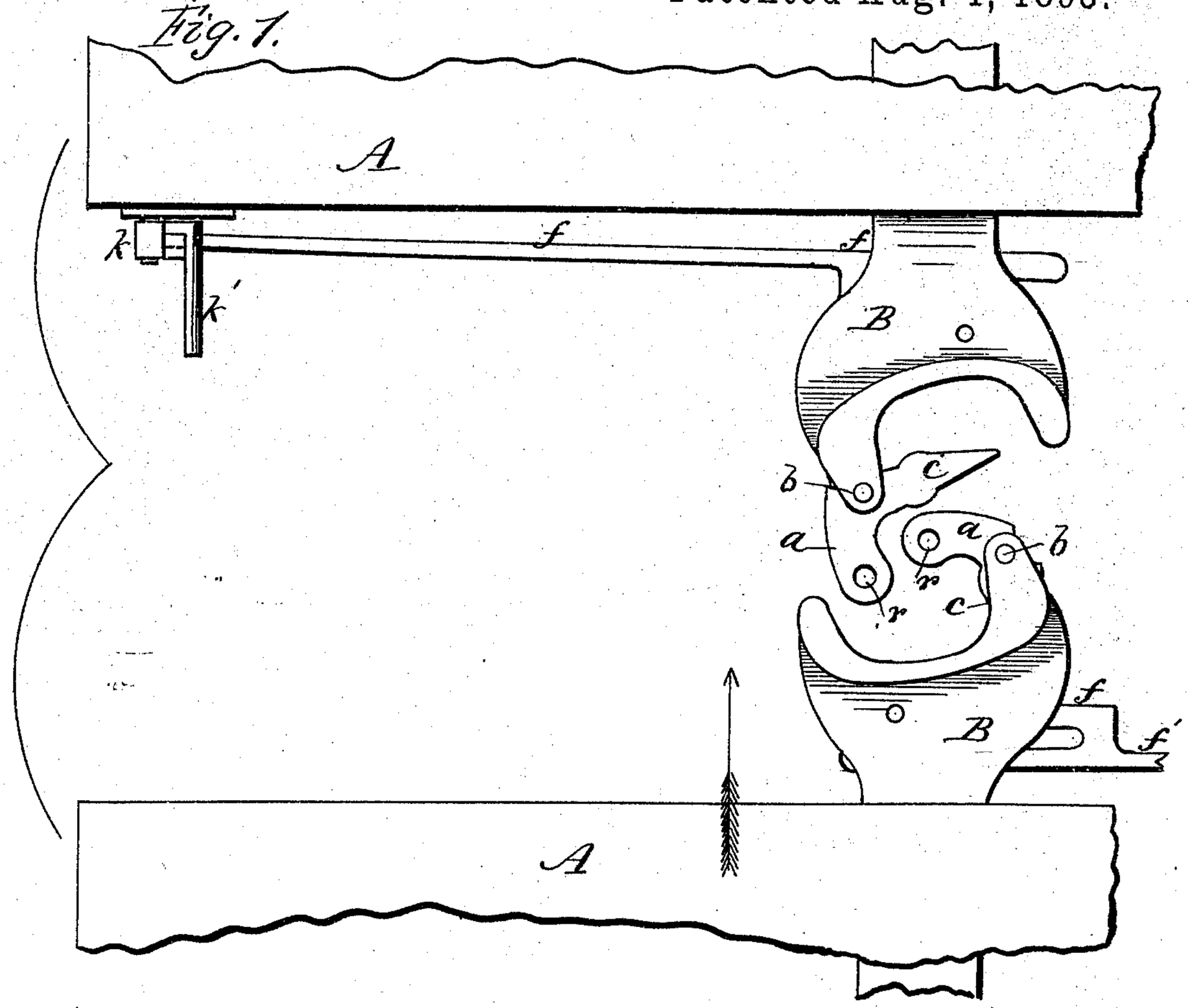
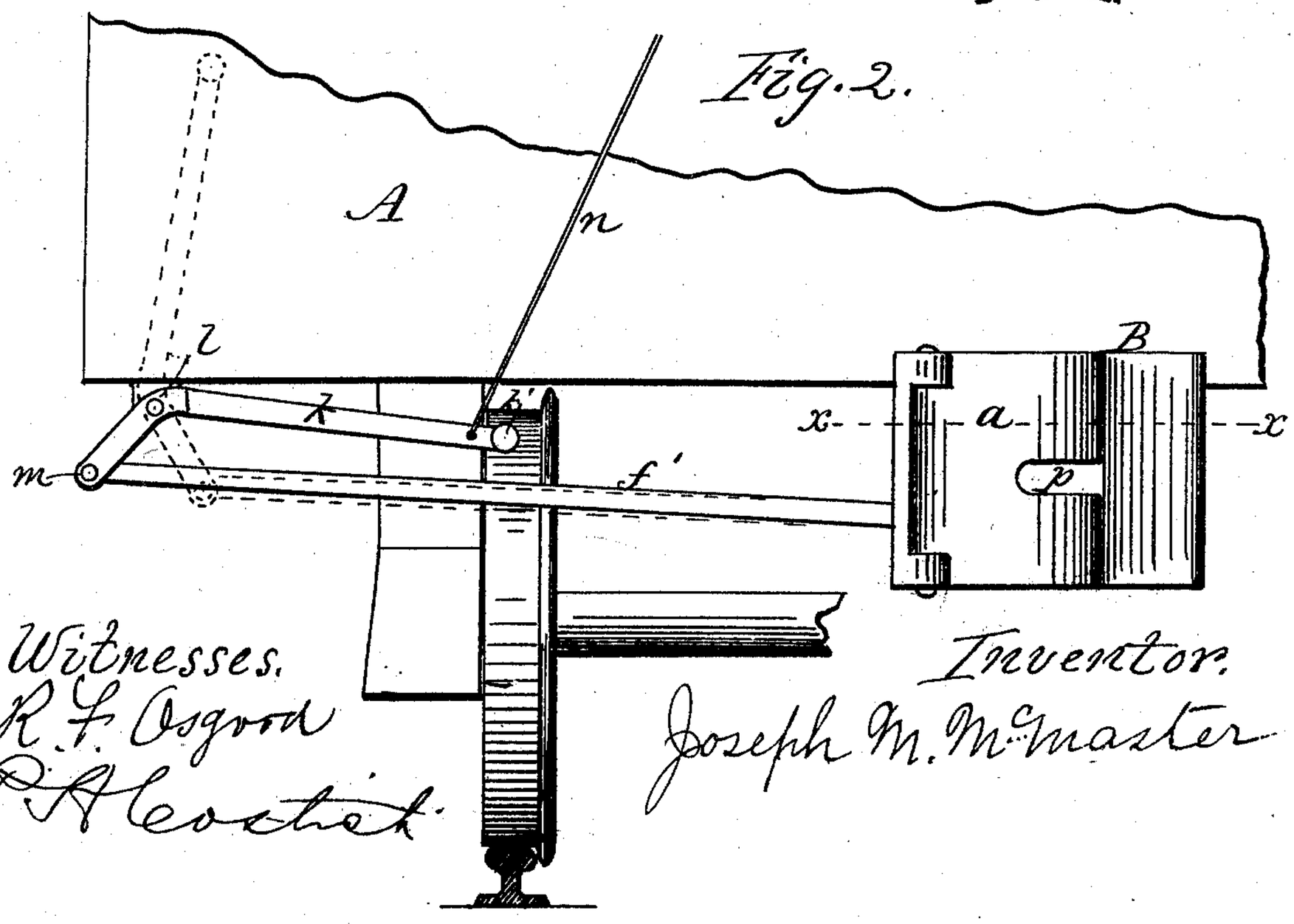



Fig. 2.




Witnesses.
R. F. Osgood
P. A. Cockett.

Inventor.
Joseph M. McMaster

(No Model.) 2 Sheets—Sheet 2.

# J. M. McMASTER.

## CAR COUPLING.

No. 502,375. Patented Aug. 1, 1893.

Fig. 3.

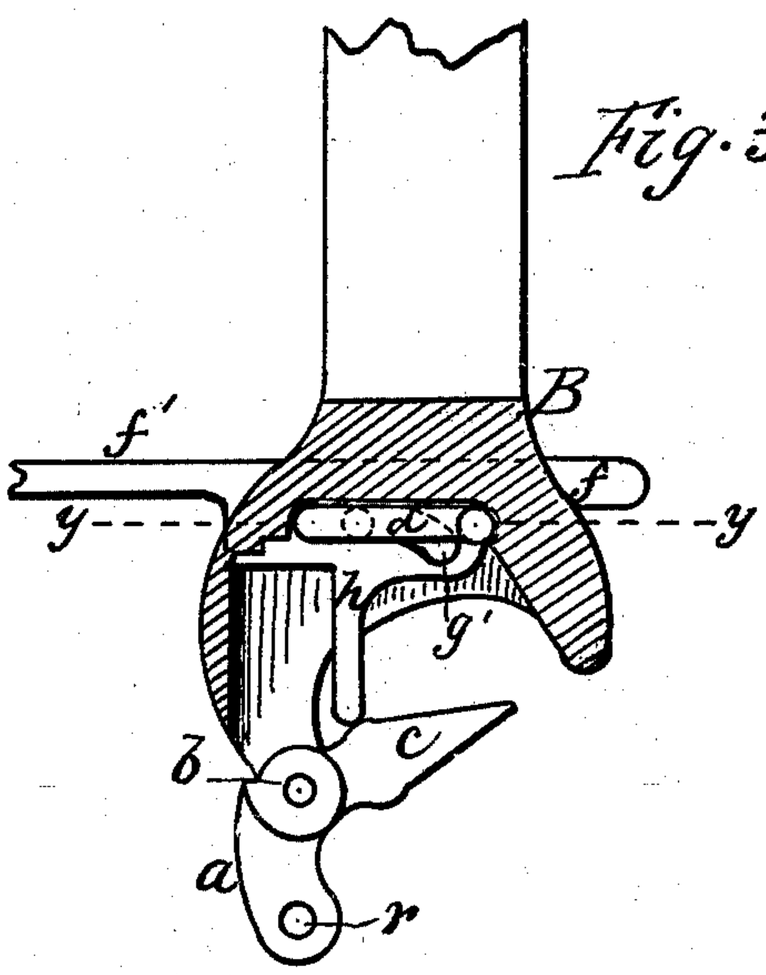



Fig. 4.

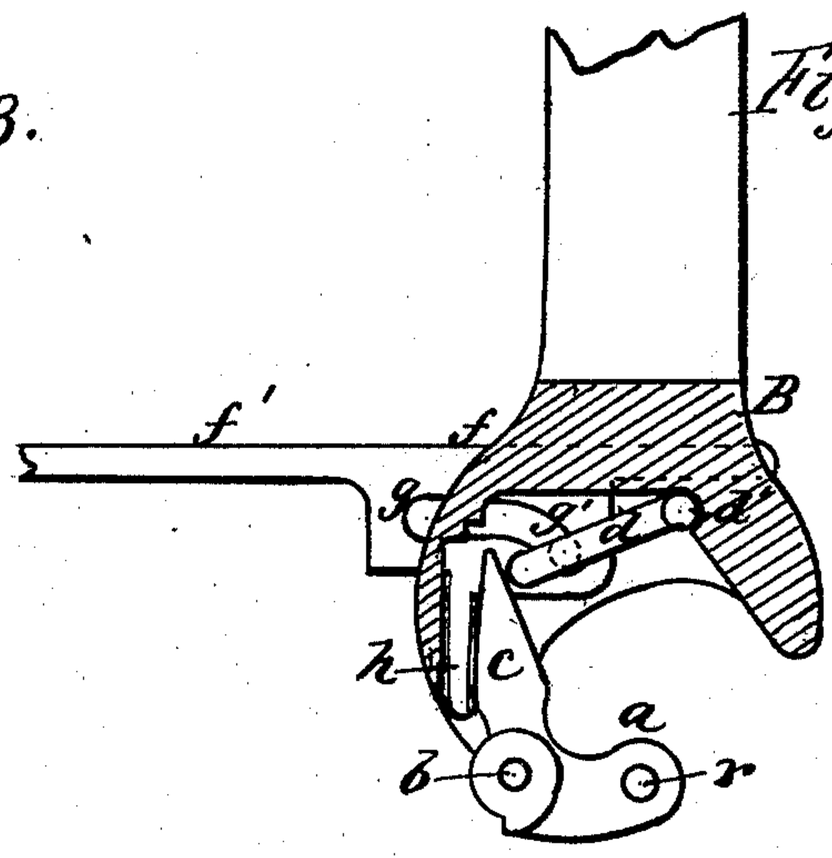



Fig. 5.

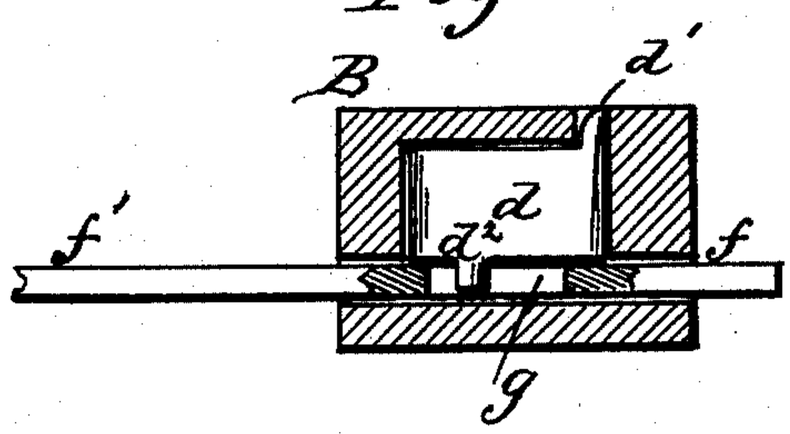



Fig. 6.

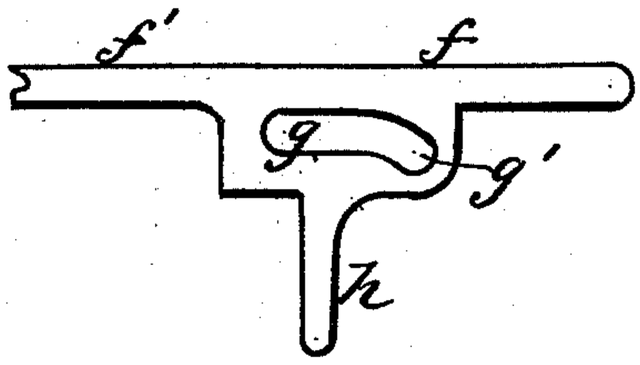



Fig. 7.

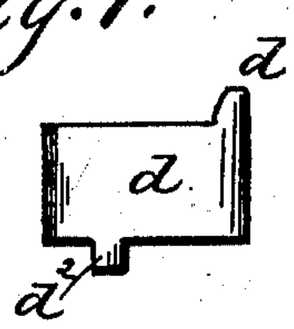
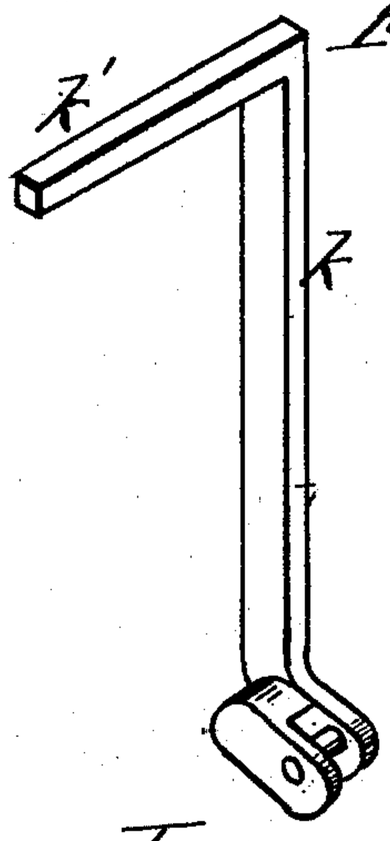



Fig. 8.




Witnesses.
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P. A. Goetsch

Inventor.
Joseph M. McMaster

# UNITED STATES PATENT OFFICE.

JOSEPH M. McMASTER, OF ROCHESTER, NEW YORK.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 502,375, dated August 1, 1893.

Application filed June 6, 1892. Serial No. 435,762. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH M. McMASTER, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this specification.

My improvement relates to car couplers of the vertical type, in which two hinged jaws, attached respectiveiy to the opposite drawheads, engage together. Several varieties of this class are now in use, but are subject to special objection, which I have endeavored to overcome in this invention.

My invention consists in the construction and arrangement of parts hereinafter described and claimed.

In the drawings—Figure 1 is a plan view showing the ends of two meeting cars, the coupling on one being set open and the other closed, in condition for engagement when the cars meet. Fig. 2 is an end elevation of the end of the car shown at the top in Fig. 1, but showing the jaw of the coupling head closed. Fig. 3 is a horizontal section of the drawhead in line *x x* of Fig. 2, with the hinged jaw thrown open. Fig. 4 is a similar view with the hinged jaw closed. Fig. 5 is a vertical cross section of the drawhead in line *y y* of Fig. 3. Fig. 6 is a plan view of the sliding cam lever. Fig. 7 is a face view of the locking dog. Fig. 8 is a perspective of the lever for operating the parts.

A A indicate the meeting ends of two cars.

B B are the drawheads. Each of these drawheads is provided with a vertical jaw, *a*, which swings out and in on a pivot *b*. Each jaw has a wedge-shaped arm *c* standing at nearly a right angle to the jaw. When the jaw is swung out, as shown in Fig. 3, it stands across the path of the other jaw when entering, but when swung in, as shown in Fig. 4, it enters the socket of the head and is held by the locking dog as will presently be described.

*d* is the locking dog, consisting of a flat, rectangular wing, provided at the top and at one end with a bearing pin *d'*, which enters a hole in the upper part of the drawhead, and a similar pin $d^2$ on the under side, but set in from the end, which pin enters the slot of the cam lever. The dog lies in a cavity in the back of the drawhead and is capable of being swung out and in at the free end, the other end at all times bearing against a groove in the shell of the drawhead.

*f* is the cam lever, consisting of a flat head that slides in a slot in the drawhead, and an arm *f'* which extends out laterally nearly to the side of the car. In the flat head of the lever is a slot *g*, (Fig. 6,) having a curved end *g'*, in which slot rests the pin $d^2$ of the locking dog. The shape of the slot is such that when the cam lever is pushed in the pin enters the straight part of the slot and throws the dog back into its socket in the drawhead, and when the cam lever is drawn out the curved part of the slot throws the dog out, in which case its end stands behind the arms *c* of the swinging jaw *a* and locks the latter in its closed position. These two positions are shown respectively in Figs. 3 and 4. The cam lever *f* is also provided with a projecting stem *h*, which rests behind the arm *c* of the jaw, and in the inward motion of the cam lever strikes said arm and throws the jaw open.

*k* is a hand lever at the side of the car, to which the end of the cam lever *f* is pivoted. The lever *k* is pivoted to the end of the car at *l*, and to the end of the cam lever at *m*, thus producing a knuckle joint, by which means when the lever *k* is thrown down, as in full lines Fig. 2, the cam lever is drawn forward, thus throwing the locking dog forward and locking the closed jaw as shown in Fig. 4. When the lever *k* is raised, as in dotted lines, the cam lever is thrown back, thus in the first part of movement releasing the jaw, and a further throwing back of said lever forcing it to swing open. The lever *k* falls of its own weight thus locking the jaw, and in its normal position rests nearly flat as shown in black lines. It is provided with a handle *k'* by which it is operated, and resting at such position that it can be reached from the side of the car without going between the cars, thus obviating the great danger that occurs in going between the cars to open other vertical couplings. The lower end

of the lever *k* is also offset as shown, and is forked or branched to receive the end of the cam lever.

*n* (Fig. 2), is a stiff wire pivoted at the lower end in the lever *k*, its upper end extending to the top of the car, passing through a staple or guide, and having a ring at its top by which it is operated. By means of this wire the coupling can be opened from the top of the car.

In the act of coupling, the jaw of one coupling head is thrown open, by pulling the hand lever, as shown at the top, Fig. 1. As the cars come together the jaw of the other head strikes the projecting arm *c*, forces it back and closes the jaw. The two jaws are thus locked together one behind the other completing the coupling action. Each of the jaws is provided with a slot *p*, (Fig. 2), by which means an ordinary link may be used to make the coupling, a pin being inserted through a vertical hole *r* in the jaw.

The shell of the drawhead has two holes so located as to permit the cam lever to pass into one, then be turned and pass through the other, enabling the pin on the under side of the dog to be entered into the slot of the lever during the passage, and seating the cam lever in place. The shell of the drawhead and cam lever are so shaped that this can be done, and when done the cam lever is securely locked in its groove without any bolts or screws or other fastenings. After this is done the jaw is pivoted to the drawhead.

By the construction above described I avoid the objections to other couplings of this kind; for example, one kind now in use is sometimes unlocked and uncoupled by jerks during rapid motion of the train in turning curves. In my invention the dog *d* obviates any such difficulty, being securely locked. In another kind operated by lifting a pin, the pin sometimes sticks by reason of rust. In this invention the cam lever is operated with sufficient power to overcome any difficulty of this kind. Others operated with springs or chains are unreliable to a certain extent, while mine is positive in action.

Having described my invention I do not claim broadly pivoted jaws.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a car coupling, the combination, with the drawhead, of the pivoted jaw *a* provided with the arm *c*, a dog *d* arranged to swing outward to lock said arm when the jaw is closed, and the sliding cam lever *f* provided with the slot *g g'* said dog provided with pins *d' d²* one resting in the shell of the drawhead and the other in the slot of the cam lever, as herein shown and described.

2. In a car coupling, the combination, with the drawhead, of the pivoted jaw *a* provided with the arm *c*, a dog *d* arranged to swing outward to lock said arm when the jaw is closed, the sliding cam lever *f* provided with the slot *g g'*, and the hand lever *k* pivoted to one end of the cam lever and to the end of the car, as shown and described and for the purpose specified.

3. In a car coupling, the combination of the pivoted jaw *a* provided with the arm *c*, the swinging dog *d*, the sliding cam lever *f* provided with the slot *g g'*, the hand lever *k*, and the wire *n* attached to said hand lever and extending to the top of the car, as shown and described and for the purpose specified.

4. In a car coupling, the combination, with the drawhead, of the pivoted jaw *a* provided with the arm *c*, a dog *d* arranged to swing outward to lock said arm when the jaw is closed, and the sliding cam lever *f* provided with slot *g g'*, which receives the pin at the bottom of the dog, and with the projecting stem *h* resting behind the arm of the jaw and serving to open the latter in the inward movement of the cam lever, as herein shown and described.

5. In a car coupling, the combination, with the drawhead B, of the pivoted jaw *a*, provided with the arm *c*, and a lever provided with a flat head entering a slot in the drawhead and capable of end movement therein, and constructed with a rigid stem integral with the head, said stem resting behind the arm as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOSEPH M. McMASTER.

Witnesses:
R. F. OSGOOD,
P. A. COSTICK.