

(No Model.)

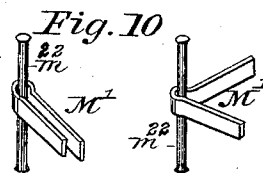
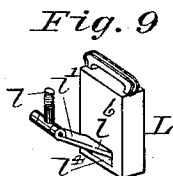
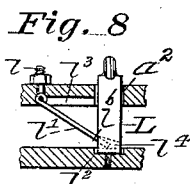
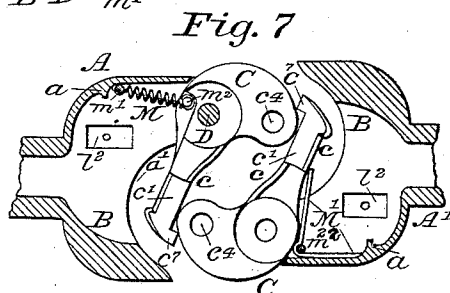
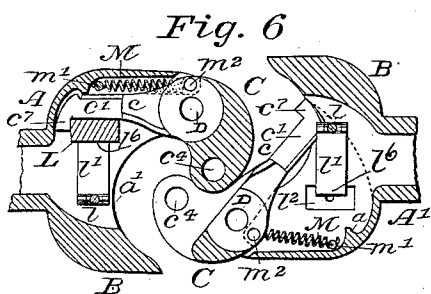
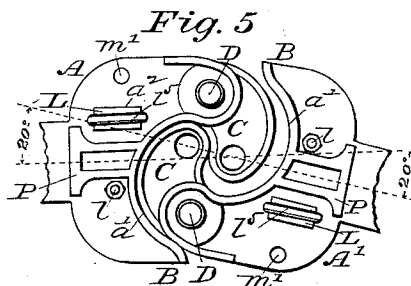
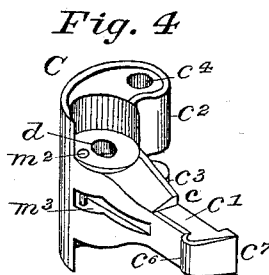
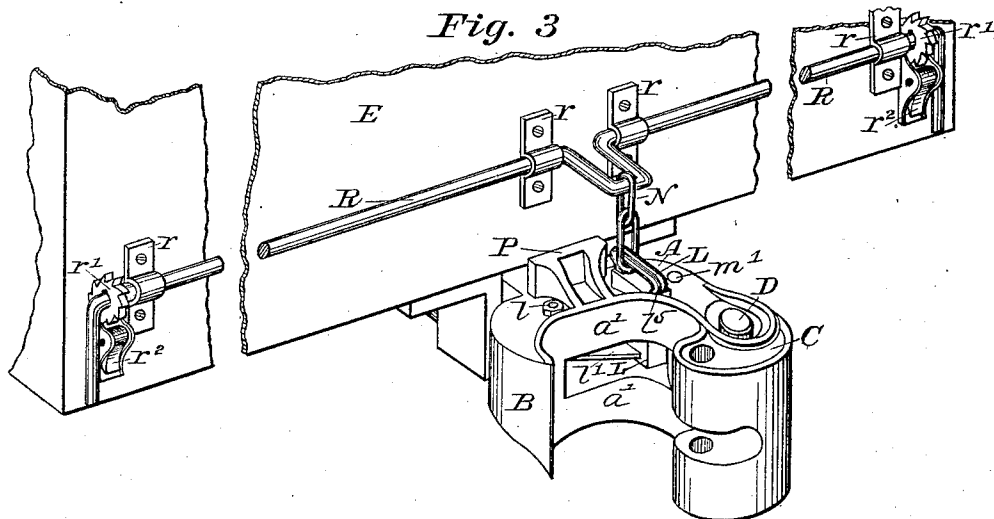
M. J. LORRAINE.

2 Sheets—Sheet 2.

CAR COUPLING.

No. 341,027.

Patented May 4, 1886.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

MADISON J. LORRAINE, OF ST. LOUIS, MISSOURI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 341,027, dated May 4, 1886.

Application filed October 3, 1885. Serial No. 173,952. (No model.)

To all whom it may concern:

Be it known that I, MADISON J. LORRAINE, of St. Louis, Missouri, have made a new and useful Improvement in Car-Couplings, of which the following is a full, clear, and exact description.

I have heretofore, in a pending application for Letters Patent of the United States, numbered serially 152,031, described an improvement in car-couplings, wherein the coupling is effected by means of draw-heads having pivoted hooks. The present improvement relates to the one referred to in that it employs many of the features of the original construction.

The aim and effect of the improvement is to provide a simpler, more reliable mechanism.

The annexed drawings, making part of this specification, exhibit the improved coupling.

Figure 1 is a plan of the draw-heads interlocked and coupled. Fig. 2 is a plan exhibiting the method of laying off the draw-head. Fig. 3 is a view in perspective, showing one of the draw-heads attached to a car-body and the mechanism preferably used in uncoupling. Fig. 4 is a view in perspective from its inner side of the draw-head hook. Fig. 5 is a plan showing the two draw-heads coupled, but relatively arranged as when the cars are on a sharp curve. Fig. 6 is a horizontal longitudinal section of the two draw-heads as being coupled, one of the heads being closed and locked and the other of the heads being open. Fig. 7 is a section similar to that of Fig. 6, but showing the parts as about to be coupled, both heads being unlocked and open. Figs. 8, 9, 10 are details, Fig. 8 being a side elevation of the locking-block with its latch attachment, Fig. 9 being a view in perspective of the locking-block and latch, and Fig. 10 showing in perspective views of a form of spring that may be used to open the draw-head hook.

The same letters of reference denote the same parts.

A A' represent the two draw-heads. They are similar to those originally used, saving as the construction is modified by the present improvement—that is, the shape externally of the draw-head is substantially the same, the buffer B is not changed, the outer portion of the hook C is as before, the concave face of the opposing draw-head with which the hook coacts is substantially of the original form,

the hook is pivoted, and is extended at its inner end to enable the hook, when closed, to be locked, and the draw-head is supplied with a hook-locking device as well as in the original draw-head. The shape, however, of the inner end of the hook is materially altered, and a different hook-locking device is employed, and it is to these points that the present improvement mainly relates—that is to say, to the combination of the swinging hook-tail, locking-block, and locking-block latch; to the swinging hook-tail having the projections in combination with the locking-block; to the swinging recessed hook-tail in combination with the spring for opening the hook when the locking-block is removed; to the draw-head having bearings in its top and bottom, in combination with the swinging hook-tail, latch, and locking-blocks, and to the locking-block in conjunction with the means for lifting it, substantially as hereinafter described and claimed.

The inner end, or what may be termed the "tail," c , of the hook C is squared at c' , and beyond this part at its back at c'' the tail is rounded out slightly to form a projection. Opposite the projection c'' , or nearly so, at the front of the tail, is another projection, c' . The hook with its tail thus constructed is adapted to swing into a recess in the draw-head suited to receive it, as indicated in Figs. 6, 7, and to operate in connection with a locking device composed of the block L and a part termed a "latch," l' —that is, when the tail has been swung into the draw-head to the limit of its inward movement, the projection c'' comes beyond and against the inner side of a shoulder, a , which projects from the shell of the draw-head inwardly into the recess, so that when the hook is closed the shoulder a is in position to prevent the tail from being drawn longitudinally outward. At the same time the block L is in front of the tail, coming against the portion c' and the outer edge of the projection c' , in which position the block serves both to prevent the hook from turning on its pivot D and, by reason of the projection c' coming against the block, from being drawn directly outward. The projections c'' , c' , or either of them, in the manner described, serve to relieve the strain upon the shaft D.

The operation of the mechanism as thus far

described is as follows: As the hook is closed, by reason of its outer portion encountering the concave face a' of the opposing draw-head, as in the original design, the hook-tail c is forced inward into the recess in the draw-head, and the back of the inner end of the tail encounters the latch l' . This last-named part, by some suitable means—such as the bolt l —is hinged or jointed to the draw-head, so that its free end l^b may be lifted and lowered within the recess in the draw-head, and in its upward movement used to raise the block L out of the way of the tail as it is swung backward into the recess. To this end the end l^b of the latch, in some desirable manner—as by allowing the end to engage loosely in the slot l' in the block—is connected with the block, so that the tail as it continues to swing inward operates to wedge the latch, and with it the block, upward sufficiently to admit of the tail passing the block, after which the block drops in front of the tail, locking the hook, as shown in the left-hand draw-head of Fig. 6. The block L is adapted to be moved vertically in a suitable bearing, a^2 , in the draw-head, and when it is lowered its lower end drops into a recess, l^2 , in the bottom of the draw-head, by which means the block is firmly held against the lateral thrust of the tail, occasioned by a pull upon the hook C , as when coupled. The block is provided with a handle, l^3 , to enable the block to be lifted whenever it is desired to release the hook C , so that it can swing outward on its pivot D . The block can be operated by hand or by means of an appliance such as shown in Fig. 3. A chain, N , connects the block with a crank-shaft, R , that is held and adapted to be rotated in the bearings rr upon the car-body E , and by turning the crank-shaft to raise the chain the block is drawn upward in the draw-head. The ratchets r' and pawls r^2 can be used to hold the crank-shaft from rotating. When the hook C is released, a spring, such as shown at M or M' , acts to open the hook and set it for recoupling. The spring M works in a recess, m^3 , in the hook, at one end being attached to a pin, m^2 , in the hook at one side of the shaft D , and at the other end being attached to the draw-head at m' .

The form and action of the spring M' can be understood by an examination of Figs. 7, 10, the spring being adapted to be folded around the pin m^2 , and to be closed and compressed when forced back by the tail, and to open and expand when the hook is released.

The draw-head is preferably supplied with a shoulder, P , which, when the draw-head has been pushed the desired distance backward, encounters the car-body and prevents the draw-head from being driven further beneath the car-body.

To provide for the longitudinal movement of the draw-head, the block-handle l^b is elongated. When the latch l' is raised, it enters the recess l^2 in the top of the draw-head. The hook is perforated at c' to receive the ordinary coupling-pin.

I claim—

1. The combination of the draw-head, the pivoted hook, the locking-block, and the latch for lifting the locking-block, the hook-tail in its movement encountering the latch, substantially as described.

2. The combination of the draw-head, the pivoted hook whose tail at c' has a shoulder, and the locking-block, said shoulder bearing against the locking-block, substantially as described.

3. The combination of the draw-head having the shoulder a , the pivoted hook having the projections $c^b c'$, and the locking-block, the shoulder c' bearing against the locking-block, substantially as described.

4. The combination of the draw-head, the pivoted hook having the recess m^3 , and the spring M , extending within the draw-head from the pin m^2 to the pin m' , and acting when the locking-bolt is removed to open the hook, as described.

5. The combination of the draw-head, the pivoted hook, the locking-block, and the spring M , the locking-block being made to be raised and lowered past the hook-tail, substantially as described.

6. The draw-head having the bearing a^2 in its top and the recess l^2 in its bottom, in combination with the pivoted hook having the tail c , the latch, and the block L , whose lower end fits into said recess, substantially as described.

7. In combination with the chain N and the draw-head A , the locking-block L , having the elongated handle l^b , substantially as described.

Witness my hand.

MADISON J. LORRAINE.

Witnesses:

C. D. MOODY,
J. W. HOKE.