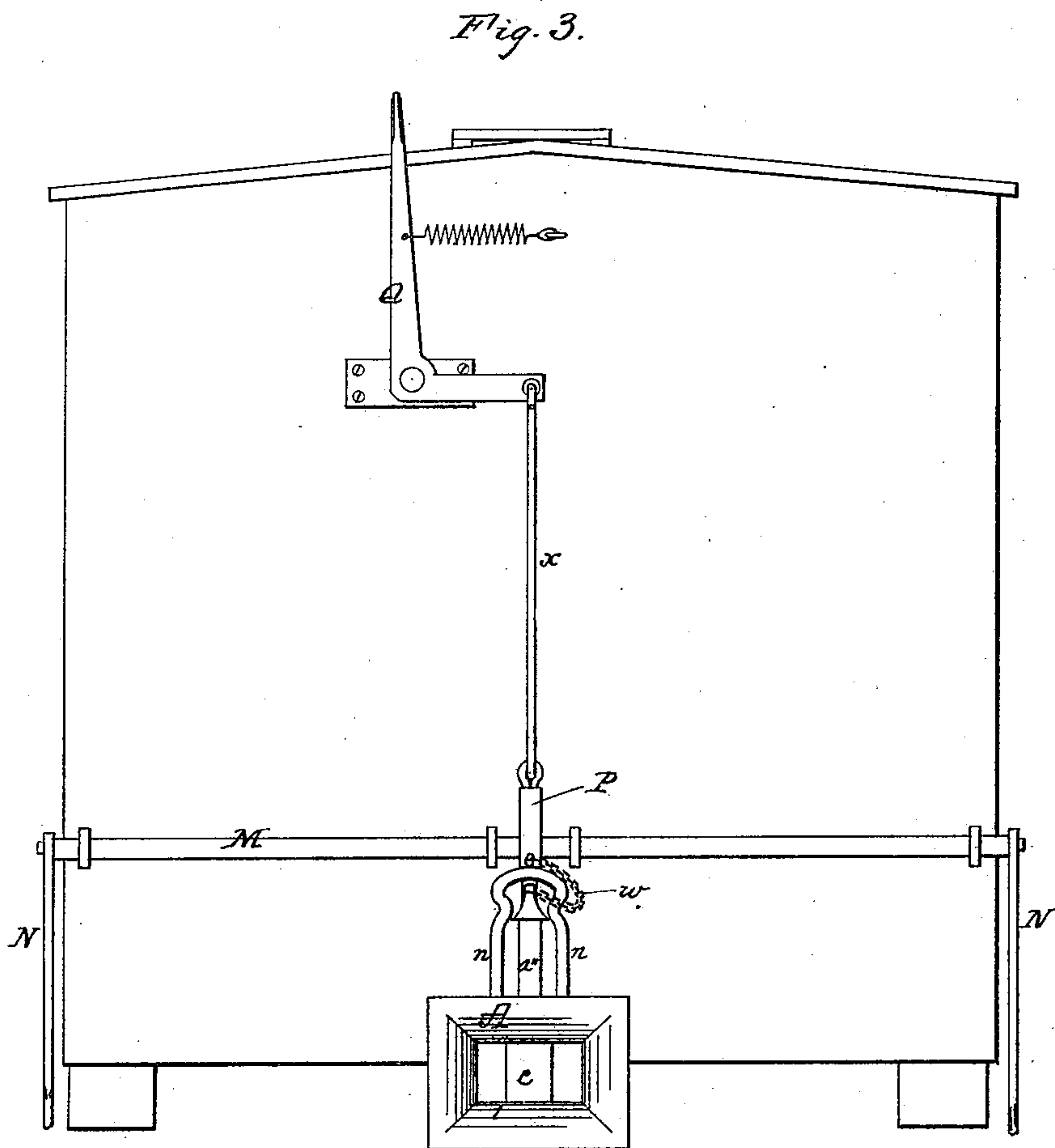
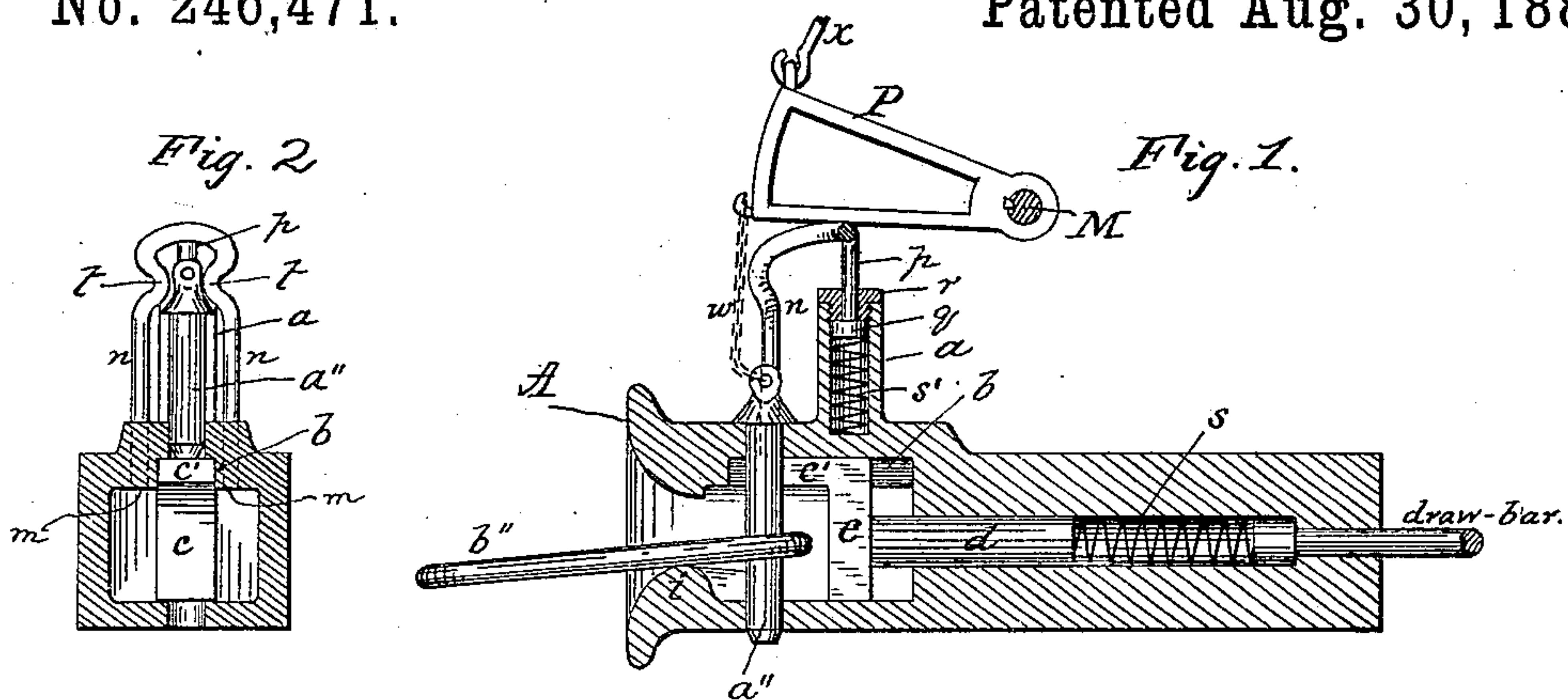


(No Model.)

J. M. DAVIS.
CAR COUPLING.

No. 246,471.

Patented Aug. 30, 1881.



WITNESSES:

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JOSEPH MERRILL DAVIS, OF WORCESTER, MASSACHUSETTS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 246,471, dated August 30, 1881.

Application filed July 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH MERRILL DAVIS, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a longitudinal vertical section of a draw-head furnished with my improvements. Fig. 2 is a transverse section at the pin. Fig. 3 is an end elevation of a freight-car fitted with my improvements.

In car-couplings heretofore constructed and provided with mechanical additions to effect the junction and coupling of the draw-heads great and sometimes insuperable difficulties have arisen from the fact that in actual service no two cars of exactly the same height get together in a train. This is a difficulty well known to railroad men.

The object of my invention is to provide a coupling which may be reliably manipulated without the slightest regard to the relative heights of the cars, and also to effect this with the ordinary link and pin.

The present invention consists in the construction and combination of parts whereby the foregoing objects are attained, substantially as hereinafter fully described and claimed.

The draw-head A is of the common form exteriorly, with the exception of the hollow standard *a*, which is either cast or attached on top of the draw-head to the rear of the regular pin-hole. A longitudinal recess, *b*, is formed in the under face of the top of draw-head A, beginning at a point even with or beyond the forward edge of the pin-hole and extending backwardly a suitable distance. In this recess and in the interior of the draw-head A slides a plunger, *c*, having the forwardly-projecting flange *c'*, as shown. Plunger *c* has a stem or rod, *d*, which passes into the cored-out or bored rear portion of the draw-head, after the draw-bar has been inserted, and is pressed forward by a coiled spring, *s*, as shown. Its permanency is secured by the flange *c'* striking against the front end of recess *b*, so that

the spring *s* can never eject it from the draw-head. The purpose of the plunger *c c'* is twofold. When the pin *a''* is lifted for uncoupling, the plunger pushes forward under the pin *a''* and supports it in position until by the forcible entry of a link the plunger is pushed back, when the pin instantly falls and passes through the link. As soon as the cars begin to move the link is withdrawn slightly, when the flange *c'* of the plunger *c* presses forward against the pin, thus jamming it in the pin-holes above and below, so that, no matter how the cars jolt and knock about, the pin is held securely in the proper position, and at the same time the flange *c'* prevents the plunger *c* from wearing out the link. The instant the pin is withdrawn the plunger springs forward and ejects the link, so that if each of two draw-heads have a link in, the brakeman on one car has simply to withdraw the pin and the link is automatically ejected.

To provide for coupling cars whose draw-heads are situated at different heights, I proceed as follows: The draw-head, on its lower front edge, has the raised bead *i*, so that when the link is in position in one draw-head it may be tilted up or down thereon. On each side of the pin-hole in the top of draw-head A, I bore vertically a hole, *m*. I construct a fork having the two parallel tines or legs *n n* and a guide-bolt, *p*, provided with a head, *q*. (See Fig. 1.) The fork is placed so that the legs *n n* pass down into the holes *m* and the guide-bolt *p* into the hollow standard *a* on the draw-head, into which standard a coiled spring, *s'*, has first been placed. A screw-cap, *r*, or other equivalent device secures the guide-bolt *p* against withdrawal from standard *a*. The fork *n n* is curved inwardly at the points *t* (see Fig. 2) in order to prevent the pin from total withdrawal from the draw-head, the lengths being suitably proportioned for that purpose.

I journal a shaft, M, horizontally across the end of the car, and at one or both ends provide it with the lever N, (or a hand-wheel,) so as to be capable of operation from the side of the car.

On shaft M, above the draw-head, I fix the crank P, whose length is such as to bring its end about over the pin, which is attached to it by a chain, *w*, as shown.

On the end of the car, near the top, I pivot

the L-shaped lever Q, its handle projecting above the car-roof slightly. The other end of lever Q is connected by the stiff rod *x* to the crank P. Thus the crank P can be lowered or elevated from either side or from the top of the car, and thus all the operations of my coupling may be effected from either of the levers.

The legs *n n* of the fork are of a moderate thickness and spaced apart the same width as a standard link. When in raised position their lower extremities do not project downwardly into the draw-head, thus leaving the latter clear for the entrance of a link.

Operation: To couple two cars, one having a link in position, if their draw-heads are of an equal height, crank P is elevated by one of the levers and the pin withdrawn on that car which has no link, or, if it have a link, the mere elevation of the pin frees the plunger and that link is thrown out. Then the two cars are simply pushed together, coupling by the link pushing in the plunger of the other draw-head till the pin falls and engages said link. If, however, the cars are of different sizes and the draw-heads on different levels, if the car having the link be the higher, the natural position of the link is to incline downwardly, because its greater length is outside the ledge or bead *i*, and therefore it is likely to enter the other draw-head properly; but if otherwise, and it becomes necessary to elevate the outer end of the link to any degree, I operate one of the levers to depress the crank P. This then presses downwardly upon the fork *n n*, and it in turn presses upon the link inside the bead *i*, and therefore tilts the outer end of the link upwardly, the degree of tilting being governed by the movement of the lever. To uncouple, the pin is simply withdrawn by the reverse action of the lever and crank.

To prevent possible breakage of the plunger *c c'*, I construct the rear end of the draw-head A with a shoulder, against which the inner end of the link impinges before spring *s* is fully compressed.

The fork *n n*, with its guide-bolt *p*, may be forged or cast of malleable iron.

The pin *a''* and link *b''* are of the common form unchanged.

In order to secure the return to place of the levers, I can attach a coiled spring to either of them, or fix a barrel-spring to the fulcrum of the lever Q, or I can wind a spring about the shaft M, and in either of these ways the crank P will be automatically restored to normal, so that the pin *a''* is always ready to fall in coupling.

I claim as my invention—

1. In a car-coupling, the draw-head having bead *i*, in combination with the spring-sustained fork *n n*, adapted to enter the draw-head and depress the rear portion of the link, substantially as described.

2. In a car-coupling, the combination of the draw-head having bead *i*, the spring-sustained fork *n n*, adapted to enter the draw-head and tilt the link, and suitable means of operating said fork from either the side or top of the car, substantially as specified.

3. The combination of the draw-head A, spring-sustained fork *n n*, shaft M, crank P, levers N and Q, and rod *x*, substantially as described.

4. The combination, with the draw-head A and pin *a''*, of the fork *n n*, contracted at *t*, as shown, whereby the pin is held against complete withdrawal.

5. The combination of draw-head A, having hollow standard *a*, and fork *n n*, having guide-bolt *p*, with head *q*, spring *s'*, and screw-cap *r*, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOSEPH MERRILL DAVIS.

Witnesses:

MYRON C. DAVIS,
THOS. J. McTIGHE.