R. A. COWELL.

CAR-COUPLING.

No. 169,624. Patented Nov. 9, 1875.

Fig. 1.

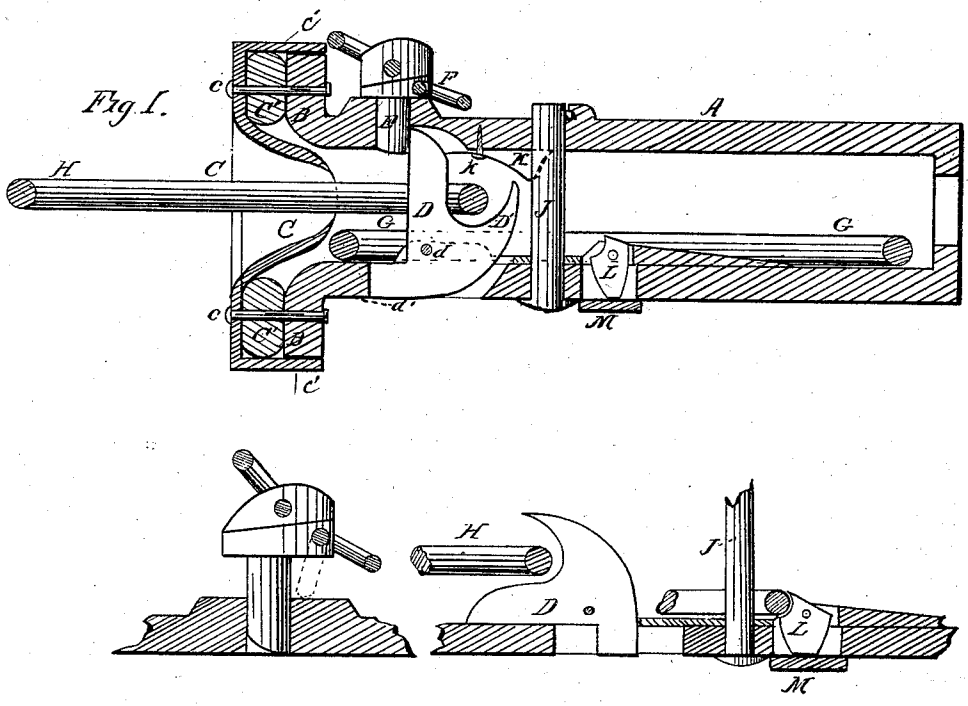
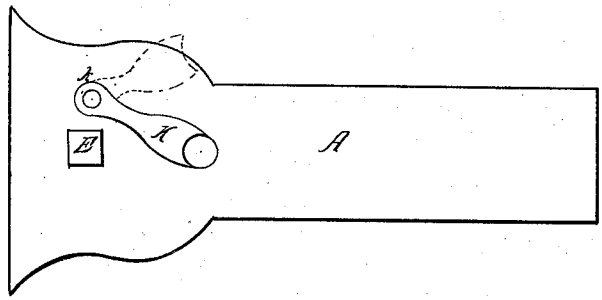


Fig. 2.



WITNESSES

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IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **169,624**, dated November 9, 1875; application filed August 10, 1875.

To all whom it may concern:

Be it known that I, RENSSELAER A. COWELL, of Cleveland, in the county of Cuyahoga and State of Ohio, 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an automatic car-coupler; and consists in the combinations and devices as hereinafter more fully set forth and claimed.

In the drawings, Figure 1 is a longitudinal vertical section through the draw-bar at the center. Fig. 2 is an upward view of the inside of the draw-head, showing the operation of the hinged guide.

A is the draw-bar; B, its head; C, the cap covering the head, which cap projects preferably into the mouth or opening at the end of the draw-bar. C′ is a cushion, of rubber or its equivalent, placed between the draw-head B and the cap C. D is a tilting or rotating pin, hinged at *d*, and provided with a hook end, D′.

It will thus be apparent that, should there be any tendency of jarring the pin E so much as to cause the arm D to be released, that tendency will be overcome by the frequent striking of the link against the hook D′, thus forcing the lever D back into its place behind the pin. Of course the weight of the link assists to do the same thing; but the presence of the hook D′, and the relation it bears to the end of the link, render the above-described operation of the link certain.

E is a latch or key, which enters the draw-bar from above. Its lower end projects downward sufficiently far that when the link is admitted it presses against the hook end of the tilting or rotating pin, and carries the pin D upward, causing it to leave the latch or key E, after which the said latch or key drops down in front of it, and prevents the rotating pin from returning until the latch or key is raised by hand or by suitable lever. This key E may be raised by hand, in which condition it is suitably adapted to freight-trains, and to such passenger-trains as do not employ platforms that come close against each other. In case the device is placed upon the car where the link is not readily accessible by hand, it may be lifted by any suitable lever projecting above the platform of the car.

The latch or pin is provided with a link or dog, F, so that when lifted to a sufficient height the link or dog F will drop down, as shown by the dotted lines, and prevent the pin from returning. This is often desirable when shipping cars, where it is desirable that they shall not couple when they come together. For ordinary coupling, however, the latch E will not be lifted high enough to cause the link or dog F to prevent its return.

G is one of the coupling-links, being that link which belongs to the car to which the draw-head itself belongs. H is the coupling-link which belongs to the other car.

The operation of the device is as follows: As the car bearing the link H approaches or is approached, the link enters the mouth of the draw-head, strikes the hook end of the rotating pin D, and tilts the portion D up into the link. As the portion D rises it raises the latch E, and passes it; then the latch E drops down in front of it and prevents its return. In this condition, it will be seen the pin D has a square bearing against the latch E and the shoulder *d*′ of the draw-bar.

J is a pin, extending down through the draw-head, which serves to retain the link G within the draw-head, and receives the strain when the link G is in use instead of the link H. It also receives the pressure of the end link H as it presses against the hook end D′ of the tilting pin D. K is a guide-block, hinged at *k*, and curved at its other end to correspond with the pin J, so that when the pin J is in position the guide-block K is held rigidly in position, as shown in the drawings.

The object of the guide-block K is as follows: As the link H enters the draw-head and strikes the hook end D′ of the pin D, were it not for the guide-block the end of the link would have a tendency to dart up above the hook end D′ against the pin J. This guide-block holds it firmly in position. Moreover, it prevents the other end of the link from dropping too low to enter the other draw-head.

The object of hinging the guide-block at *k* is as follows: If it were not so hinged it would be a fixture within the draw-bar, in which case the link G could not be removed because of striking against this guide-block. In case, however, it is desired to remove this link G, the pin J is withdrawn; this releases the guide-block K, and it is swung out of the way around the pivot *k*, when the link can be removed. The cushion C′, between the cap C and head B, serves various purposes, as follows: First, when the cars come together it receives and sustains the shock consequent thereon; second, when the cars have coupled, the caps C, resting against each other, will, because of the elasticity of the cushion C′, rest against each other with such a friction as to prevent the cars from oscillating sidewise, thus preserving, in a great measure, the cars, the coupling, the track, and the running-gear; third, when the cars—as, for instance, on a freight-train—are backed up against the close brakes of the rear car, in order to make a start—as, for instance, on a grade—the starting-power of the engine is augmented by the elasticity of the cushion C′. *c* are pins or any suitable device, whereby the cap C is secured to the draw-head B. The draw-bar and cap may be formed of any suitable metal, either wrought or cast. I have, however, some of the devices of full size in practical use on railway-cars, wherein the device is formed of malleable iron, which appears to answer every purpose, having been subjected to severe tests. When the link G is in use, its rear end has a bearing against the shoulder L. This shoulder L may be made in the usual form—a solid casting, or solid with draw-bar. There is, however, an objection to this form, as follows: When the cars come together with a hard blow, the end link G would be driven hard against the shoulder L, and it is liable to break the link. I therefore prefer to form a tilting shoulder, L. This is made yielding. Its form is such that, being pivoted as shown in Fig. 1, the weight of the link and the weight of the draw-bar would hold it in place, as it will be seen that the draw-bar, resting as it does upon an underneath supporting-plate, M, causes its own weight to react against the tilting shoulder L, to hold it in the position shown in the drawings. The shoulder L in this position will be held with sufficient firmness to withstand the ordinary shock in all ordinary cases of coupling; but when the cars come together with unusual force the link G, in pressing against the shoulder L, would cause it to tilt around its pivot and bear upon the plate M. This would lift the draw-bar bodily from the plate M, and the link G would ride back over the yielding shoulder L. It will be noticed that the shoulder L is quite close to the pin J, so that the front end of the link would have to be raised so as to drop the other end down under the shoulder L. This serves to hold the link always level, and to render it not liable to jump out over the shoulder L.

I am aware draw-heads have been provided with facings, and that cushions have been interposed between them; but my cap C has the side laps *c′*, which serve as a more secure attaching medium of same to the draw-head.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the draw-bar A, of a cap, C, provided with the lapels *c′*, and intermediate cushion C′, substantially as and for the purpose described.

2. The combination, with the draw-bar A, of the tilting or rotating pin D, provided with the hooked end D′, and latch or key E, substantially as and for the purpose described.

3. The combination, with the draw-bar A and the tilting pin D, of the guide-block K, substantially as and for the purpose described.

4. The combination, with the draw-bar A, of guide-block K, hinged at *k*, and the pin J, substantially as and for the purpose described.

5. The combination, with the latch or key E, of the link or dog F, substantially as and for the purpose described.

6. The combination, with the draw-bar, of the rotating pin D, pivoted at *d*, latch E, and shoulder *d′*, substantially as and for the purpose described.

7. The tilting pin D, pivoted at *d*, and provided with a hook end, D′, substantially as and for the purpose described.

8. The combination in a draw-bar, with the link G, of yielding pivoted shoulder L, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RENSSELAER A. COWELL.

Witnesses:

WELLS W. LEGGETT,

FRANCIS TOUMEY.