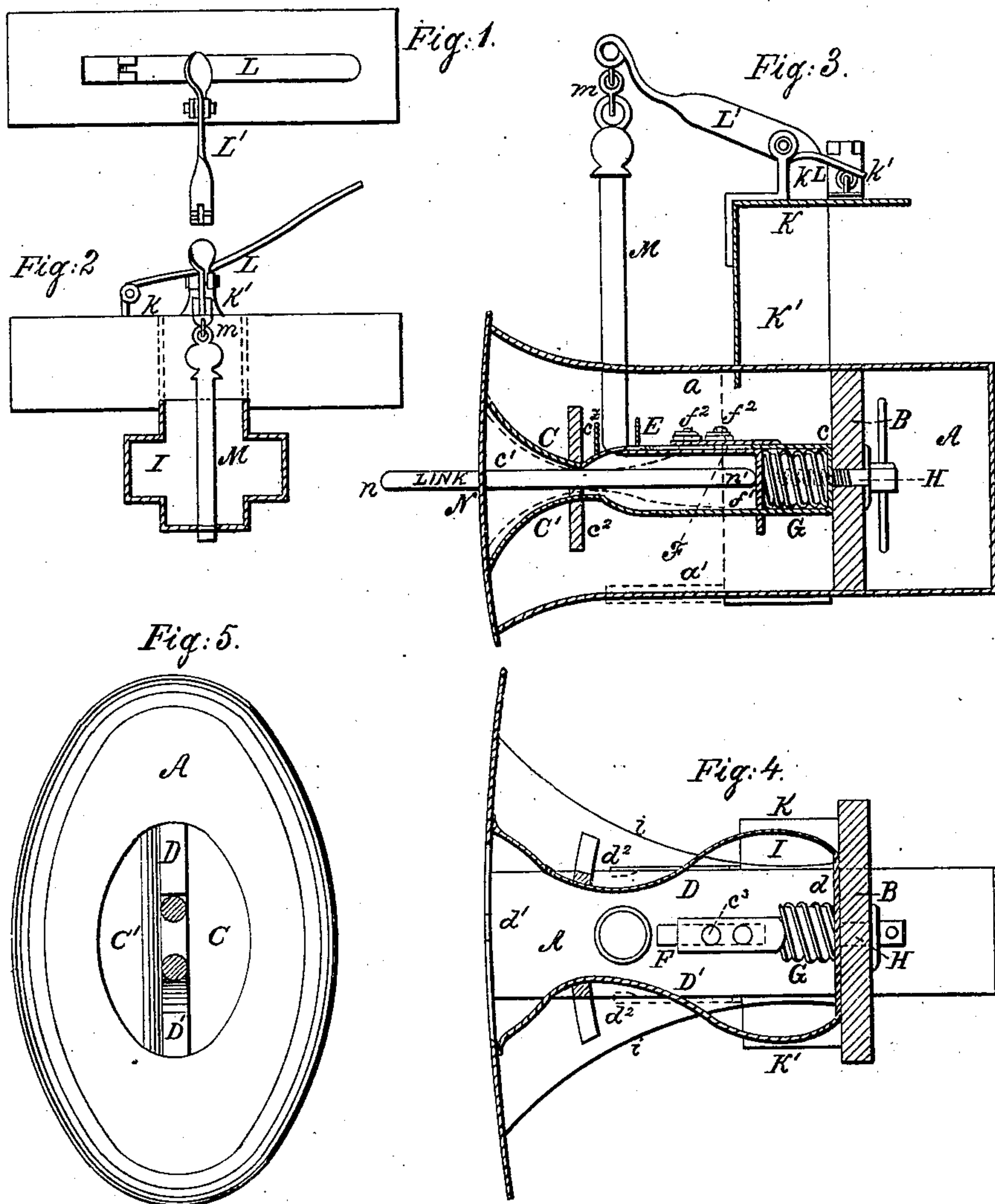


J. D. M. AMBRUST.

Car Coupling.

No. 84,465.

Patented Dec. 1, 1868.



Witnesses.

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# United States Patent Office.

J. D. M. ARMBRUST, OF APOLLOBOROUGH, PENNSYLVANIA.

Letters Patent No. 84,465; dated December 1, 1868.

## IMPROVED CAR-COUPLING.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, J. D. M. ARMBRUST, of Apolloborough, county of Armstrong, and State of Pennsylvania, have invented a new and improved Mode of Coupling Railroad-Cars; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon.

Figure 1 is a top view, showing the compound lever which operates the coupling-pin.

Figure 2 is a front view of the same, and its supporting-frame.

Figure 3 is a longitudinal vertical section of the coupling-device.

Figure 4 is a horizontal section of the same.

Figure 5 is a front view of the same.

It is well known that in order to render a self-coupler effective on railroad-cars, it is indispensably necessary that the link should ever be held in a horizontal position, or directly in line with the draw-head or bumper, so that the free end of the same can readily enter the opposite draw-head, when it is desired to unite the cars together.

My invention consists in so arranging a series of springs within an ordinary draw-head that they form, as it were, a metallic case. Now, so soon as the link enters within this case, the natural tendency of the springs is to grasp the link, and with a force sufficient to prevent its free end from falling, but still, at the same time, not grasping it with force sufficient to prevent its having that necessary play required in order that it can readily accommodate itself to the swaying and bounding of the car while in motion.

My invention also consists in arranging within the draw-head an additional spring to those used in forming the case, and above referred to, and which is connected to the bearing-plate by the same pin. This spring operates the keeper-plate, which retains the pin in an elevated position when required to secure the link.

My invention also consists in securing to the draw-head an independent frame, which furnishes the necessary support for the compound lever that operates the coupling-pin, when it is desired to elevate the same.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

A is an ordinary draw-head or bumper.

B is a bearing-plate, which is secured by means of screws to the upper and lower plates,  $a$  and  $a'$ , of the draw-head A. Instead of the plate B, a post or other equivalent device can readily be used, should the same be preferred.

C and C', D and D' are two metal sheets, so bent as to leave straight bearing-surfaces, as shown at  $c$  and  $d$ , figs. 3 and 4.

These springs C and C' and D and D' form a metallic case, and are so flared at their outer or free ends,

$c'$  and  $d'$ , as to form a funnel-shaped opening for the reception of the link.

The springs D and D' are provided with lugs or wings  $d^2$  and  $d^2$ , which work in slots  $c^2$  and  $c^2$ , arranged in the springs C and C', the slots acting as guides for the lugs in order to secure the proper action of the springs.

On the spring C, and a short distance in the rear of the slots  $c^2$ , there is a boss, E. This boss E is cylindrical and hollow, and is immediately over an opening left in the plate C for the coupling-pin to pass through.

F is the keeper, and retains the coupling-pin in an elevated position, as shown in fig. 2. This keeper, F, is composed of metallic plates, and is in the form of an elbow.

Against one arm of this elbow presses a coil-spring, G. This coil-spring, G, when not compressed by the action of the link, forces the keeper to such position that its upper arm closes the opening in the spring, over which rests the boss E.

To the arm of the keeper F there are firmly secured screw-bolts, which pass a slot,  $c^3$ , in the spring C, and through a plate,  $f^1$ .

These plates,  $f$  and  $f^1$ , are united by the screw-bolts and nuts  $f^2$ , and have their bearings in the upper and lower surface of the spring C.

Through the centre of the plate B there is an opening in which works a screw-bolt, H. On this bolt H works the coil-spring G. This bolt also passes through openings in the straight bearing-surface  $c$   $d$  of the springs C and C', D and D', the latter acting as nuts to firmly secure the entire spring-mechanism together, and insure the joint and united operation of the same. It will be observed that by this arrangement the springs have their entire bearings in the rear, and at a single point. The great advantage resulting from this is found in the fact that the outer opening is entirely free, which cannot be when one or more of the springs are secured at or near the mouth of the draw-head.

I is an open frame, which works on the draw-head A.

To the lower surface of the frame I there are attached two guide-plates,  $i$   $i$ , which are so recessed at their outer ends as to grasp the lower plate  $a'$  of the draw-head A. These plates  $i$   $i$  retain the frame I in a proper position to insure the direct and perpendicular action of the coupling-pin.

To the upright arms of the frame I, I secure two plates, K K'. These plates are arranged at right angles to each other.

The plate K is provided with projecting bearings  $k$  and  $k'$ , to which are secured, and in which work the compound lever L and L'.

To the outer end of the lever L' is secured, by links  $m$ , the coupling-pin M.

The operation is as follows:

Suppose the end,  $n$ , of the link N to be secured within a draw-head of a car, the opposite draw-head, coup-



ling-pin, &c., will be in the position shown in fig. 3, the pin M resting in the boss E, and retained in an elevated position by the plate *f* of the keeper F. The link N enters through the mouth of the draw-head A and the funnel-opening of the springs C and C', D and D', the pin M still being held in an elevated position until the end, *n'*, of the link comes in contact with the plate *f'* of the keeper F, which presses back the coil-spring G, and withdraws the plate *f* from under the opening at the bottom of the boss E, when the pin M will instantly fall, and the cars are coupled.

When it is desired to uncouple the cars, you have only to place your foot on the lever L, and the pin is withdrawn, and so soon as the plate *f'* is relieved from the pressure of the link, the spring G forces the keeper F out to a position that causes the plate *f* to again close the opening at the bottom of the boss E.

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent of the United States, is—

1. Arranging, within a draw-head, A, a series of springs, C and C', D and D', when the same are secured by a single bolt, H, at the rear of the same, thus leaving their forward opening or mouth entirely free, substantially as described, as and for the purpose specified.

2. The combination of the keeper F, spring G, plate B, and bolt H, when the former is secured to and works upon the spring C, substantially as described, as and for the purpose specified.

J. D. M. ARMBRUST.

Witnesses:

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W. H. WATT.