(No Model.)

A. R. RICHARD.

CAR COUPLING.

No. 250,969. Patented Dec. 13, 1881.

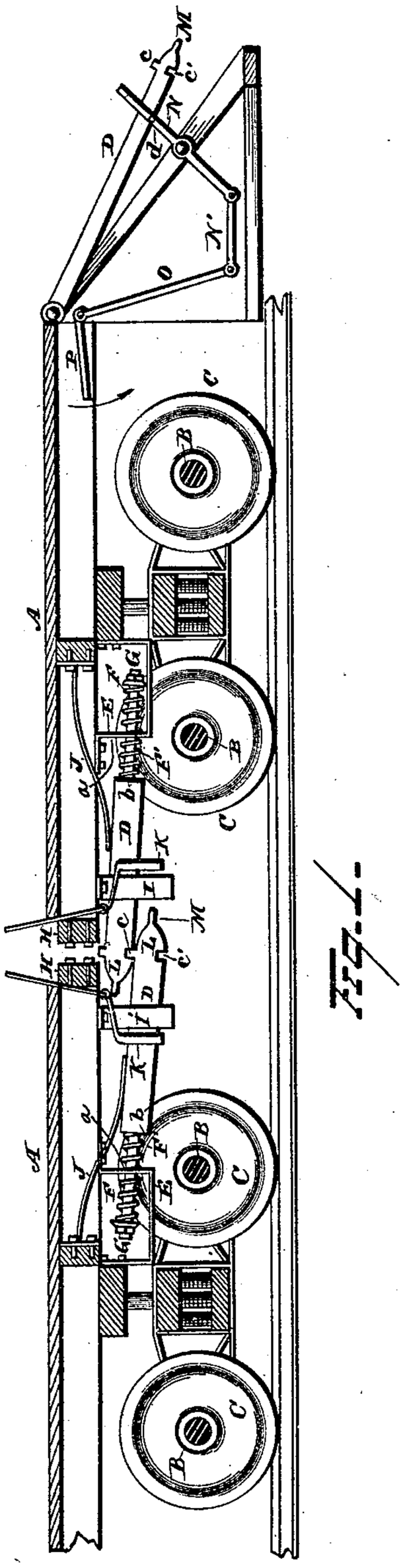

FIG. 1.

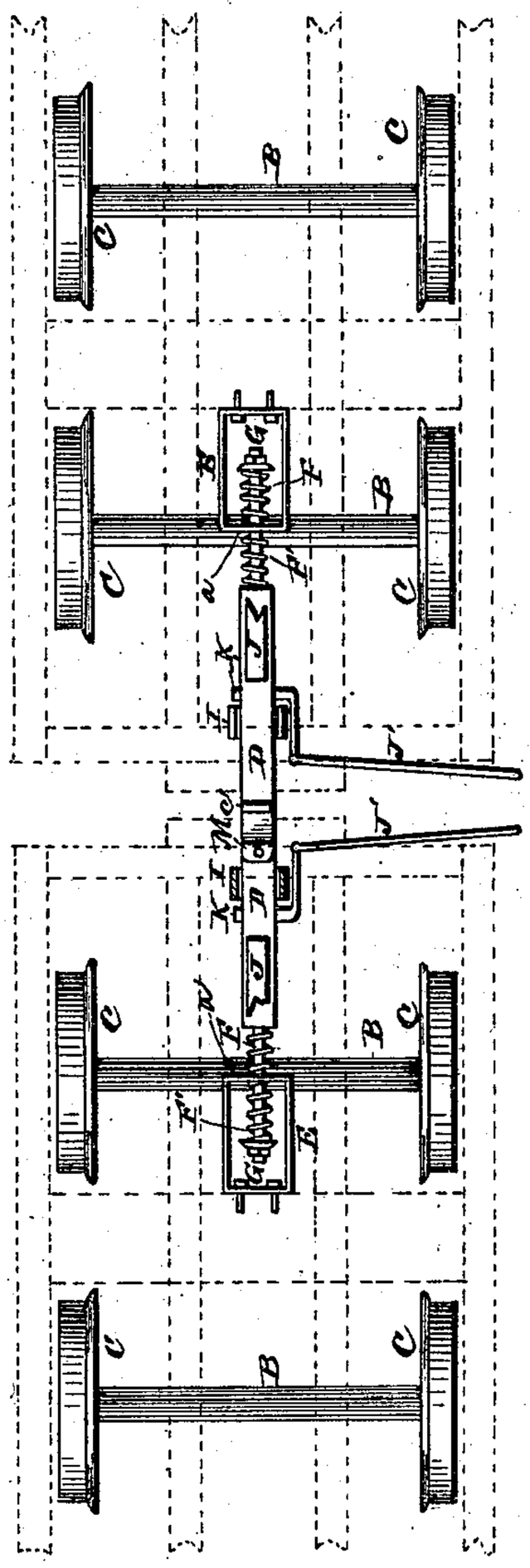

FIG. 2.

WITNESSES

E. L. Nottingham

Frank C. Bowen

INVENTOR

A. R. Richard

By Sugett & Sugett

ATTORNEYS

UNITED STATES PATENT OFFICE.

AARON R. RICHARD, OF SHARON, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 250,969, dated December 13, 1881.

Application filed October 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, A. R. RICHARD, of Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Automatic 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in automatic car-couplers; and it consists in certain details in construction and combinations of parts, as will be more fully explained, and pointed out in the claim.

On the accompanying drawings, Figure 1 is a longitudinal sectional view, showing my improved couplers in a locked position; and Fig. 2 is a plan view of the same with the car-bodies removed.

A represents the ordinary platform of the car, B the axles, and C the wheels.

D is the metallic draw-bar, the rear portion of which is rounded off and provided at the extremity with screw-threads. This rounded portion of the draw-bar is adapted to rest and move in the brackets E, secured in any suitable manner to the under side of the car-body. These brackets (one on each end of the car) are provided with a vertical opening extending nearly throughout their entire length, which opening is of width sufficient to allow the draw-bar to move vertically without inconvenience. The rounded portion of the draw-bar D, when in its normal position, is adapted to rest about one half in the brackets and the other half to the outside of the same, and is encircled on the inside of the said brackets by the spring F, one end of which leans on the inside of the vertical portion *a* of the brackets, while the opposite end bears against a nut, G, screwed onto the inner end of the draw-bar. This spring is constantly exerting a backward pressure on the end of the draw-bar, which pressure is increased or diminished by tightening or loosening the nut G. The opposite end of the rounded portion of the draw-bar, or that portion outside of the bracket, is also encircled by a spring, F′, which bears on the outer face of the vertical portion of the bracket and the shoulder *b* on the draw-bar, thereby constantly exerting an outward pressure on the draw-bar, which equalizes the pressure of the spring F and holds this end of the draw-bar firmly in position. By the above arrangement of parts the springs on the draw-bar act in conjunction with the bumpers H and lessen the jarring incident to coupling during the making up of trains without overstraining either part. The remaining portion of the draw-bar to the head thereof is rectangular in shape, and is supported and moves vertically in the stirrups I, secured in any desired manner to the bottom of the car. These stirrups also allow the draw-head free vertical movement without any lateral movement, which enables cars of different height to be automatically coupled and retained.

J are flat steel springs of the desired length, secured in any desired manner to the under side of the car and adapted to bear on the upper face of the draw-bar. These springs, when not counteracted, keep the draw-bars down to their lowest limit, which, when the cars are coupled, as shown in Fig. 1, prevents the upper draw-bar from being disconnected with the lowest one by every sudden jar.

For the purpose of counteracting the downward pressure of the springs J, so as to enable the cars to be uncoupled at pleasure, I have secured a collar, K, around the draw-bar to the rear of the stirrup I, which latter is connected to a rod, J′, pivoted to the under side of the car-body. This rod is connected to a bell-crank lever pivoted to the side of the car-body, while the opposite end of the said bell-crank has an operating-lever secured thereto, which latter extends up to the top of the car or onto the platform, as desired. When it is desired to uncouple the cars it is only necessary to depress the operating-lever on the car whose draw-bar is on the top, which elevates the draw-bar, where it can be retained by locking the operating-lever, (if the cars are not separated immediately,) or by any other suitable means.

The head L or extreme outer end of the draw-bar D is flattened out to form a link, M, as shown, while the sides above and below the same are gradually curved backward, so as to allow the head on the opposite car to ride gradually back until they are locked together.

Each head L is provided on its upper surface with a shoulder or pin, *c*, running transversely across it, while each under surface is provided with a transverse groove, *c'*, of little larger size than the said shoulders, so as to allow the said shoulders to drop into the grooves without difficulty.

Heretofore, when heads of draw-bars adapted to operate in a similar manner to mine have been used on cars, they have either been provided with a longitudinal slit passing centrally through the same for the introduction of the ordinary coupling-link, when it is desired to attach the car to a car with ordinary coupling mechanism, or else have had no arrangement provided thereon for attaching to ordinary cars. In the first case, the main object sought to be accomplished—viz., to automatically couple cars without the necessity of entering between them, which endangers life—is of no avail, as the coupling-link has to be held in position until the cars meet. The objections to the second case, where a car cannot be attached to another not provided with a similar coupling, are obvious and need no mention here.

With my improved link rigidly attached to the extreme outer end of the draw-head, I am enabled to couple with any car, irrespective of the height of the same, without endangering life or without changing the parts, which would necessitate a delay.

Fig. 1 also shows my improved coupler attached to the pilot of an engine. In this case the draw-bar is rigidly pivoted thereto in the ordinary manner, without the springs F and F', and is elevated to the proper position without entering between the cars. To accomplish this I have provided a stirrup, N, pivoted to the pilot, with its lower end extending below the same, to which the connecting-rod N' is attached. The opposite end of the connecting-rod N' is pivoted to the lower end of the rocking lever O, which latter is provided with the handle P. The stirrup N can be made with a U-shaped upper end, or can be made in two separate parts, with the roller *d* connecting the two parts or sides, and on which the draw-bar rests. When the parts are in a closed position the draw-head rests on the end of the stirrup, between the arms of the U-shaped head, and when the said stirrup is caused to assume an inclined or vertical position, according to the height of the car to be coupled thereto, the draw-head is also raised in position to be coupled to the ordinary car or to a car provided with my improvement without entering between them.

My improvements can be attached to any ordinary car without altering or changing the car-body in the slightest, and, as before stated, the danger of accidents is avoided during the operation of coupling; and, as before stated, it is applicable to cars of different heights, as the vertical motion of the draw-heads compensates for variation in the height of the platforms.

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

In a car-coupler, the combination, with the draw-head provided with the link M, pin *c*, and groove *c'*, of a bracket, E, supporting the inner end of the draw-head, so that the latter may be moved vertically, springs F and F', stirrup I, limiting the downward movement of the draw-head, spring J, and collar K, the latter being connected to an operating-lever, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of October, 1881.

AARON R. RICHARD.

Witnesses:
ABNER APPLEGATE,
WILLIAM V. BYARD.