

J. HAYDEN.  
CAR-COUPLING.

No. 189,034.

Patented April 3, 1877.

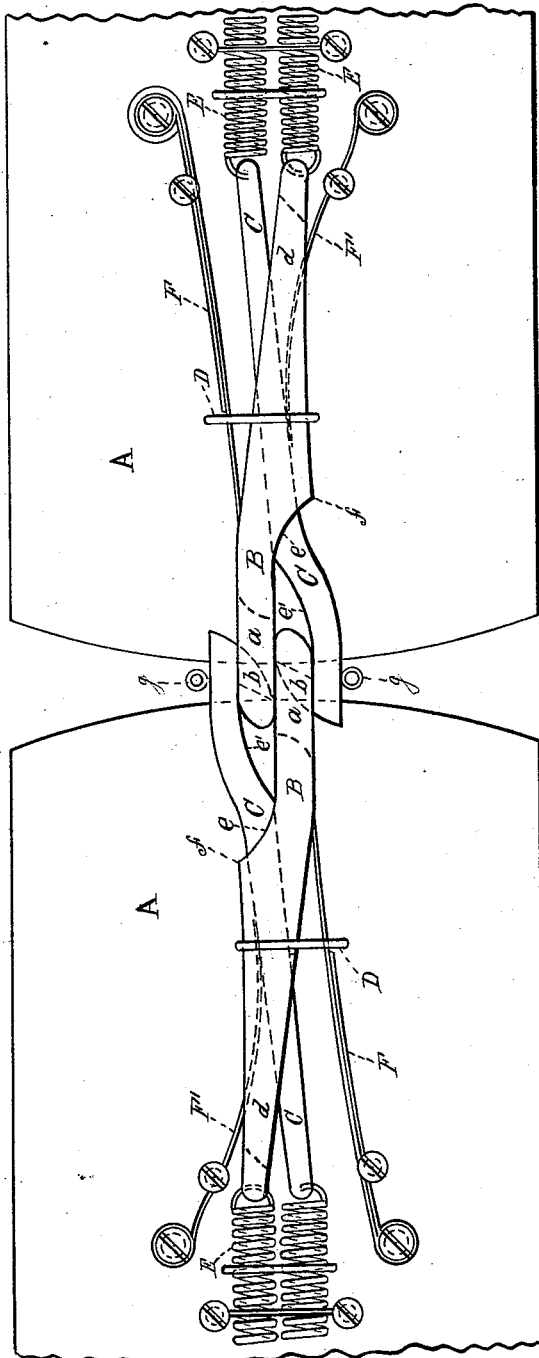


FIG. 1

Witnesses  
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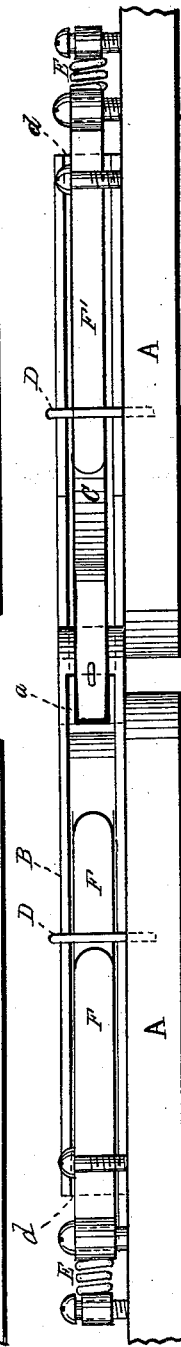


FIG. 2

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# UNITED STATES PATENT OFFICE.

JAMES HAYDEN, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. **189,034**, dated April 3, 1877; application filed March 1, 1877.

*To all whom it may concern:*

Be it known that I, JAMES HAYDEN, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Car-Couplings, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a bottom view of the contiguous platforms of two cars having my improved coupling. Fig. 2 is an edge view of the same in an inverted position.

Like letters of reference in both figures indicate the same parts.

The nature of my invention consists, mainly, of a draw-bar having an eye formed by means of a horizontal slot in its front or outer end, in combination with a bar which has a hook on its front end, there being a longitudinal slot in the first-mentioned bar, in which it is placed, the two bars being arranged somewhat diagonally with each other, although approaching a parallel position. The bars are combined with the platform of a car, and held laterally in position by means of suitable springs, as hereinafter described, there being a pair of such bars connected with all the platforms of a train in such manner that, when the cars are brought together for coupling, the hook of each pair of draw-bars will engage with the eye of the contiguous pair, whereby a double coupling is formed, which gives great additional strength, while, at the same time, double security is attained by the double coupling, inasmuch as if one connection is broken, the other will be sufficient to hold the cars together.

Another security is given by the connection of the hooks with the eyes, as they cannot be disengaged vertically in running down or up grade, to which difficulty pairs of hooks connected together are liable. The bars are held laterally, in equilibrium, in the middle of the cars, by means of springs, which press toward each other, holding the bars between them, but admitting of lateral movement of the bars, to which they freely yield as the former come into proper position for the connection of the hooks with the eyes, or when the bars change their positions in turning curves. The bars are held in connection

with the platforms by means of staples or yokes, which also control their lateral movements. Their inner ends are held by suitable springs, which admit of the longitudinal movement of the bars, in addition to the lateral movement of their front or outer ends.

The bars are so arranged that, when brought together for coupling, the ends of the eyes, which are rounded, press between the end of the opposite eye and the adjacent hook, whereby the pairs of bars are freely spread apart and the coupling easily made, without the unpleasant and jarring thumping incidental to two hooks being forced together.

The central edges of the pairs of bars are curved, as hereinafter described, to avoid the necessity of springing widely apart in coupling. The curves of the eye-bars are terminated at the front end of the slots through which the hook-bars pass, so as to form a projection of the cheeks of the slot for the support of the latter bars in their lateral movement, and also to form a space for the movement, thus superseding the necessity of having such space in the supporting-staples above mentioned.

A A represent the platforms of the contiguous ends of two cars, arranged bottom upward, to give a clear and unobstructed view of the couplings. B B are draw-bars, which have eyes *a a*, formed by means of horizontal slots at their front or outer ends; and C C are bars of about the same length, which have hooks *b b*, that, when the cars are brought together, couple with the eyes, as seen more clearly in Fig. 1, and thereby form a double coupling. In each bar B there is a horizontal slot, *d*, in which the rear end of the connected bar C is arranged diagonally with the bar B, approaching a parallel position, so as to have the hook of the bar C in proper position for coupling with the eye *a* of the bar B, connected with the contiguous platform. The bars B have a curve, *e*, at their central edge, and the bars C a curve, *e'*, for the purpose of bringing the pairs of bars as nearly as possible longitudinally in line with the longitudinal vertical plane of the cars. The curve *e* of the bars B forms a projection, *f*, of the cheeks of the groove *d*, which serve as supports for the bars C in the lateral movements of said bars, and

also form a space for the movement of the bars, and thus supersede the necessity of such space in the supporting-staples D D. Connected with the rear ends of the bars B C are the wire springs E E, which yield in the draft of the bars, and to the lateral movements of the same. Each pair of bars B C are held in their normal central position when coupled, as seen in Fig. 1, by means of the springs F F', pressing in opposite directions.

I make the spring F, which presses against the bar B, sufficiently stiff to press said bar, when at rest, against the opposite prong of the staple D, to keep it in its central position. The bar C being lighter than the bar B, and having greater lateral movement, I make the spring F', which presses against it, correspondingly light. The hooked-end bars C C are provided with eyes *g g*, for the connection of any suitable device for giving the lateral movement to the bars for uncoupling the cars.

In the act of uncoupling the cars, the bars C C are spread out in front from the bars B B, as above described, to admit of the hooks *b b* passing out of the eyes *a a*, and as soon as the cars separate they are brought back into their former position (seen in Fig. 1) by the action of the springs F and F'; and when the cars are brought together for coupling, the rounded end of each eye *a* presses between the end of the opposite eye and the adjacent hook *b*, thereby spreading them apart far enough for the hooks to enter the eyes. They are then automatically coupled together, as seen in Fig. 1, by the united and central pressure of the springs F and F'.

The ends of the bars B C of each pair are arranged at equal distances from the end of the platform, whereby the bars are readily coupled together on curve tracks, and change

their position laterally in accommodation to each other in turning curves, with great freedom of movement.

The bars B C may be so constructed as to be arranged parallel with each other, instead of crossing diagonally, in which case the longitudinal slots *d* in the bars B would be omitted; yet I prefer the construction and arrangement of the bars as above described.

I claim as my invention—

1. The draw-bar B, having an eye, *a*, in its front end, in combination with the draw-bar C, having a hook, *b*, the bars being so arranged in relation to each other and with the platform A that, when two cars are brought together, the hook of each pair of bars will automatically couple with the eye of the other bar, substantially in the manner and for the purpose set forth.

2. The arrangement of the bars B and C diagonally with each other, the bar B having a longitudinal slot, *d*, in which the bar C is held in position, substantially in the manner and for the purpose set forth.

3. The bar B, having projections *f*, for the double purpose of supporting the bar C in its lateral movements, and for forming a space between the projections for the movement of the bar, substantially as set forth.

4. The combination of the springs F F' with the draw-bars B C, when so arranged as to press toward each other, and thus keep the bars in their central position when the cars are on a straight line, and allow them to yield in accommodation to each other in turning curves, substantially as set forth.

JAMES HAYDEN.

Witnesses:

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