

## Car Coupling.

**No. 98,076.**

**Patented Dec. 21, 1869.**



WITNESSES:

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# United States Patent Office.

JOSEPH LONG, OF MECHANICSBURG, PENNSYLVANIA.

Letters Patent No. 98,076, dated December 21, 1869.

## IMPROVED CAR-COUPLING.

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

*To all whom it may concern:*

Be it known that I, JOSEPH LONG, of Mechanicsburg, Cumberland county, in the State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings; and I hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawing, forming part of this specification.

The nature or essence of my invention consists in certain improved features in a car-coupling, the same being hereinafter fully described and claimed.

On the drawing, hereinbefore mentioned—

Figure 1 is a horizontal or top sectional view, at the line *xx* on fig. 2;

Figure 2 is a front view of the head, and the jaws within, with a transverse section of a connecting-bar between the jaws;

Figure 3 is an elevation, on a reduced scale, of the outer bar or plate of the head;

Figures 4 and 5 show different forms of connecting-bars; and

Figure 6, the particular form intended for general use with my draw-head.

In constructing my improved draw-head, I bend a wide bar or plate of iron, A, twice, at right angles, as shown by fig. 3, and form, on its ends, rivets *r*, by means of which it is connected to the bumper-head B.

I also bend another somewhat shorter plate, C, in like manner, having first formed on its ends the jaws D, having the surface of their faces corrugated, so as to form grooves and ridges, as shown in fig. 2.

The two plates are then connected at their rear ends by a heavy bolt, E, the plate C being within A, and having its flat sides vertical, while those of the plate A are horizontal.

F is a cushion, inserted between the plates, of India rubber or other suitable material, and a similar cushion may be put on the bolt outside the plate A, under the nut *s*, or inside the plate C, under the head of the bolt.

The plate C is bent so that the jaws D, when free, stand near together, but are sprung open by the entrance of the connecting-bar, which they then firmly clasp, (see fig. 2,) their natural elasticity being aided by the spiral springs G, inserted, as shown, between the sides of the plate C and the side plates or braces H, fastened to the edges of the plate A.

For uncoupling or releasing the head of the connecting-bar, I provide the oval cam L, having the shaft or axle N, turning in the upper and lower portions of the plate A, and having on it the operating

hand-wheel O, the position of which is indicated on fig. 1, by dotted lines.

By turning the wheel and cam the jaws D are sprung apart, and the head of the bar I may then be withdrawn.

As, however, the square holding-shoulders of the bar would otherwise be very liable to catch, in passing out, upon one side or the other of the jaws or head, I attach to the middle part of the bar, light springs, J, their ends being free, and extending nearly to the shoulders of the bar.

These springs are so set that when the jaws are opened, they spring out sufficiently to prevent the shoulders from catching on either side, while they readily yield to the greatly superior force of the spring-jaws D, when these jaws close upon them.

I also provide a connecting-bar and link combined, as shown in fig. 4, one end of this connector being a bar formed like the bar I, and the other being an open link, its purpose being to connect cars provided with spring-jaws to those intended for a link-connection.

Fig. 5 shows another form of connecting-bar, for connecting high and low cars, when the difference in height is great; but when this difference is small, it is abundantly provided for by the depth of the jaws D, clearly shown in fig. 2.

The flat or vertical sides of these bars have their surfaces corrugated with ridges and grooves corresponding to those on the face of the jaws D, as shown by the cross-section of a bar on fig. 2. This enables the jaws to hold the bar in a horizontal position when the opposite end is free, so that it may be ready to enter the head of another car, and, in connection with the spring-jaws, makes mine an automatic or self-acting coupling.

To whatever point of elevation, within the limits of the vertical depth of the jaws, the free end of a bar may be directed by its height on the car by which it is supported, there it may enter and there it will be held if the other end be released, while, at the same time, it will yield without damage to any unusual vertical vibration or jolting of the connected cars.

If it should be desirable to allow cars, having a coupling-bar between them, to come together without coupling, it will only be necessary to set open the jaws having no bar in them, by means of the cam L, and cars may be readily uncoupled while in motion in a train by the same means, as the vibration produced by the motion of the cars will cause the jaws to move off the shoulders of the bar, under a constant force acting upon them through the cam, however great the drawing-strain upon the bar may be.

The extremities of the coupling-bars are made wedge-shaped, so that they may force open the jaws to enter, and the cam L acts as a stop for the end already in place to strike against.

I claim—

1. The combination of an open link with a bar, having the surface of its sides corrugated and adapted to spring-jaws, substantially as described.

2. In a car-coupling, the combination of a coupling-

bar, having the surface of its sides corrugated, with spring-jaws, having the surface of their faces corrugated in a corresponding manner, substantially as and for the purpose set forth.

JOSEPH LONG.

Witnesses:

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JOSEPH LEAS.