

Patented June 26, 1883.



Inventors.

James B Davis

UNITED STATES PATENT OFFICE.

JAMES B. DAVIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 280,016, dated June 26, 1883.

Application filed May 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. DAVIS, a citizen of Washington, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Car-Couplings; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in the construction of car-couplings especially designed by its simplicity and cheapness for use upon freight-cars, but which may be used with slight variations in construction upon passenger and other cars, the object of the invention being to produce a draw-head connection between cars that shall embrace the qualities of cheapness in construction, elasticity, capability of automatic couplings, release of coupling without entering the space between the cars, and breakage of the coupling-link in case of derailment. These objects are attained by the constructions and arrangement of parts as will be hereinafter fully described, and the patentable novelty therein covered by suitable claims.

In the accompanying drawings, Figure 1 is a side elevation of the draw-head, its case, and means for attaching the latter to a car, also showing the link-pin and lever for withdrawing the pin from the link. Fig. 2 is a horizontal section of the draw-head and case upon the line *x x* of Fig. 1, looking downward, and showing the arrangement of the draw and buffer spring with relations to the other parts. Fig. 3 is an end view of the apparatus as applied to a car. Fig. 4 is a perspective view of the link, and Fig. 5 is a like view of the pin.

The letter A in Figs. 1 and 2 indicates that portion of the car-body to which the spring-case B is secured, and may be the car-floor, as shown on the longitudinal timbers which form a part of the floor-frame and pass one upon each side of the case from end to end of the car. This case B is preferably of cast-iron cored out to form a receptacle for the draw-head C. The case is provided with suitable

flanges, *a a*, through which pass the bolts that secure it to the car.

It will be apparent that when the case is to be secured to the longitudinal timbers of the car side flanges, as indicated by dotted lines in Fig. 3, will be required, bolts passed through said timbers and flanges securing the parts firmly together. The draw-head C is also preferably of cast metal, and is cored out to form receptacles for the spring link and pin. Its form and positions with relation to the case B are clearly shown in Fig. 2, *b* representing the orifice through which the pin passes, *b'* the link-receiving recess, and *b''* that which receives the buffer and draw spring D. This spring may be of coiled steel, as shown, or of rubber, it being the same as the springs now in common use in car-building for buffer and draw springs. It is placed within the recess *b''* of the draw-head and encircles a bolt, E, which is provided with an enlarged head or plate, *c*, that fits loosely within the recess and forms a bearing for one end of the spring, its opposite end resting against the rear portion of the draw-head. The bolt E passes through an orifice in the rear portion of the draw-head and also through a similar opening in the case B, and is provided with a nut, *c'*, which screws up against the end of the case and furnishes a means for increasing or diminishing the tension of the spring. The orifice *b* in the draw-head is provided with an elongation which receives the angular projections or fin *e* upon the pin F. The form of this pin is clearly shown in Fig. 5, a conical mortise, *e'*, being formed through its upper end to receive the end of a cranked hand-lever, G, pivoted to the car-frame, by the agency of which lever the pin may be lifted without entering the space between the cars, as it is apparent that the upper end of the hand-lever may be bent to one side, so as to be operated from the side of the car as well as in the position shown from above. The form of the pin is such that it may be readily molded and cast from steel or other suitable metal, the conical shape of the orifice *e'* allowing the pattern to be withdrawn from the mold without danger of breaking down the core which forms this orifice, thus enabling the manufacturer to produce a reliable pin at small cost.

The coupling-link H, the form of which is clearly shown in Fig. 4, is also preferably made of cast-steel or some similar metal, which, while it retains great strength when exposed to compression or longitudinal strains, readily gives way to those of a torsional nature, the object being to cause a breakage of the link, which would occur through those parts weakened by the elongated slots *d d* in case a car was derailed, thus preventing the derailment of one car from dragging others off the track. It will also be observed that the links H are the medium through which the buffing strains are imparted to the springs D, as the ends of the link when the cars come together bear directly against the heads *c* of the bolts E in two adjacent draw-heads, the ends of which will not meet until the springs are compressed to their greatest extent. In drawing the car, however, the strain comes directly upon the case B, as the spring is held in position by the bolt which passes through it, and the draw-head is drawn out as the spring is compressed.

It will be observed that the four important elements of the coupling mechanism may be made of cast metal; that the parts, if properly cast, are ready to go together with little or no fitting, thus reducing the cost of an effective automatic coupler and draft mechanism to a minimum; and, further, that the apparatus

offers no impediment to the use of the ordinary link and pin when it is desired to couple a car provided with these improved devices to one having the draw-heads now in common use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. The combination, with the case B, attached to the car as described, of the draw-head C, spring D, and link H, arranged, as specified, to bring the strains in buffing upon the link and the draft strain upon the draw-head, substantially as set forth.

2. In a car-coupling device, the cast-metal pin F, provided with triangular fin *e* and conical mortise *e'*, in combination with the operating hand-lever G, pivoted and bent as described, arranged as and for the purpose specified.

3. In a car-coupling device, the cast-metal case B, draw-head C, provided with recess *d'*, spring D, and bolt E, arranged and operating substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES B. DAVIS.

Witnesses:

S. J. McCATHRAN,
JOHN B. DAVIS.