J. WHITEFORD.
Car-Coupling.

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Witnesses:

Inventor.

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JOHN WHITEFORD, OF WASHINGTON, D. C., ASSIGNOR OF ONE-HALF OF HIS RIGHT TO WILLIAM HENRY BROWNE, OF SAME PLACE.

IMPROVEMENT IN CAR-COUPINGS.


To all whom it may concern:

Be it known that I, JOHN WHITEFORD, a citizen of the United States, residing at the city of Washington, in the District of Columbia, have invented a new and useful Improvement in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention belongs to that class of devices for coupling railway-cars which, when forcibly brought together automatically, interlock.

As advantages of my improvement over other devices for the same purpose, I claim safety, cheapness, durability, lightness, the saving of time, adaptability to cars of different heights and to those using links and pins, and exemptions from dangerous shocks and jolts.

Reference is had to the accompanying drawings, showing my device, in which Figure 1 is an end elevation of a passenger-car; Fig. 2, a lateral longitudinal sectional view; Fig. 3, a lateral view of a draw-head and bar, with cylinder for spring and fixed bent lever; Fig. 4, a perspective view of a draw-head and bar; Fig. 5, a vertical view of the draw-head; Fig. 6, draw-heads in the act of coupling; Fig. 7, a vertical view of draw-heads coupled; Fig. 8, end elevation of a box freight-car; Fig. 9, perspective view of my mode of coupling with link and pin; and Fig. 10, a cross-sectional view, showing the space between the draw-bar D, the bottom of the car, and the stirrups.

Draw-head A involves a main feature of my improvement. Its notched projections B curve inward from their points, and are beveled and curved inward—i.e., toward an imaginary line running longitudinally through the center of draw-head A and its bar D—a diagonal, dividing said projections which are chamfered rounded to allow them to disengage, as may be seen in Fig. 10. Said projections face the center, with the vertical space (see Fig. 5) of one pair of projections B passing beyond the point of escape of the other engaging projections B to allow free play. Between projections B of each draw-head there is, in the full size, a space of about two inches, more or less. (See Figs. 4 and 9.) The inside of the shoulder of draw-head A, where projections B join it, is flat, so that it may be useful in shunting, and also serve as a bumper.

Draw-bar D tapers from the shoulders, and is of much less diameter than the draw-head, and is square-cornered.

As can be seen in Fig. 10, there is a suitable space between the draw-bar D and the bottom of the platform to allow ample play when said bar turns corners.

Rigidly affixed to draw-bar D is the bent lever d, loosely joined (by links, if need be) by connecting rod e to the pivoted lever C.

Lever C may be of any necessary length to adapt it to a passenger-car, Fig. 1, or to a freight-car, Fig. 5. Said lever may be fixed in place with a pin, a chain, ratchet-teeth, or by other simple means.

Connected with draw-bar D is the cylinder, to which are attached springs E, with suitable collars and other necessary appliances.

My device is held in position beneath the body of a car by ordinary means—as stirrups and bolts—and by methods which are too common in practice to here require a detailed description, the means of fixing and holding it in proper position for use on railway-cars not constituting any part of my invention.

When projections B are brought into forcible contact, friction causes each draw-bar and head to partly revolve until junction is complete and pressure ceases, when they of their own weight fall back and draw-bar D rests on its flat bottom surface, and projections B thereby interlock.

Owing to the peculiar construction of projections B, there is but little resistance in passing each other. No nice adjustment is required, so that when cars differ in height from the rails—as, for example, when one car is high, because empty, and the other is loaded, and consequently depressed on its springs for several inches—each draw-head accommodates itself to its opponent, and by a flexibility of motion they interlock.

By the free play of the draw-heads with each other, owing to space x, Fig. 3, and space z x, Fig. 6, and the slack allowed thereby, the cars
are saved from sudden and dangerous jolts and shocks in starting and stopping trains, and by the lateral play they are saved from strain in turning curves. By the use of my device cars may readily be coupled on a curve.

To uncouple cars lever C is moved toward the center of the car, as seen in Figs. 1 and 8, by which means the draw bar and head are partly revolved, and the corresponding projections B are thrown out of line with each other and disengage.

If it be desired that cars should come in contact without coupling, by means of lever C, as may readily be understood, the draw-head may be thrown out of gear and so held.

Fig. 9 shows my mode of coupling with a car using link and pin. The ordinary link J (without turning on one side) slides into the space between the upper and lower projections B,(see Fig. 3,) and the pin g drops within and holds it firmly. This pin is hooked, as shown in Fig. 9, to keep it from falling through, and it may be secured with a chain to keep it from being lost. This pin is held in a vertical position by the flatness of the sides or inner faces of the respective projections B, so that it may not lose its hold on the lower notch, and thus permit the link to slip off.

I am aware of the fact that in other devices cars are coupled by means of interlocking hooks; but they do not combine in one draw-head the advantages of elasticity and flexibility, arising from longitudinal and lateral play, the coupling of cars of different relative heights, the coupling with link and pin without weakening the draw-head by a pin-hole, the convenience for pushing or shunting by reason of the flat head where the ends of projections B strike, the throwing out of gear to prevent coupling, coupling on a curve, and simplicity, lightness, cheapness, and strength.

I prefer to make my draw-heads of wrought-iron, for the reason that they may be forged out of scrap-iron, and, while being stronger than if made of cast-iron, they would be lighter.

If desired, the inner or striking parts of projections B may be faced with steel.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a car-coupler, the square-cornered draw-bar D, with its head A, having two notched projections, B B, the engaging-points h h of which overlap, Fig. 5, with space x, Fig. 3, to allow for up-and-down motion without disengaging and for the insertion of link J, and with space x, Fig. 5, to allow for the insertion of pin g and for slack on a direct pull, and also for free play in turning curves, all constructed, arranged, and operating as and for the purpose described.

2. In a car-coupling device, the square-cornered draw-bar D, with its head A, which has flat square shoulders i and notched projections B B, all constructed and arranged substantially as and for the purpose described.

3. The car-coupling device consisting of the square-cornered draw-bar D, having rigid lever d, cylinder for springs E E, and draw-head A, with its notched projections B B, in combination with pivoted lever C and connecting-rod c, all arranged and operating substantially as herein described.

JOHN WHITEFORD.

Witnesses:

H. C. DAILEY,

JAMES F. O'CONNOR.