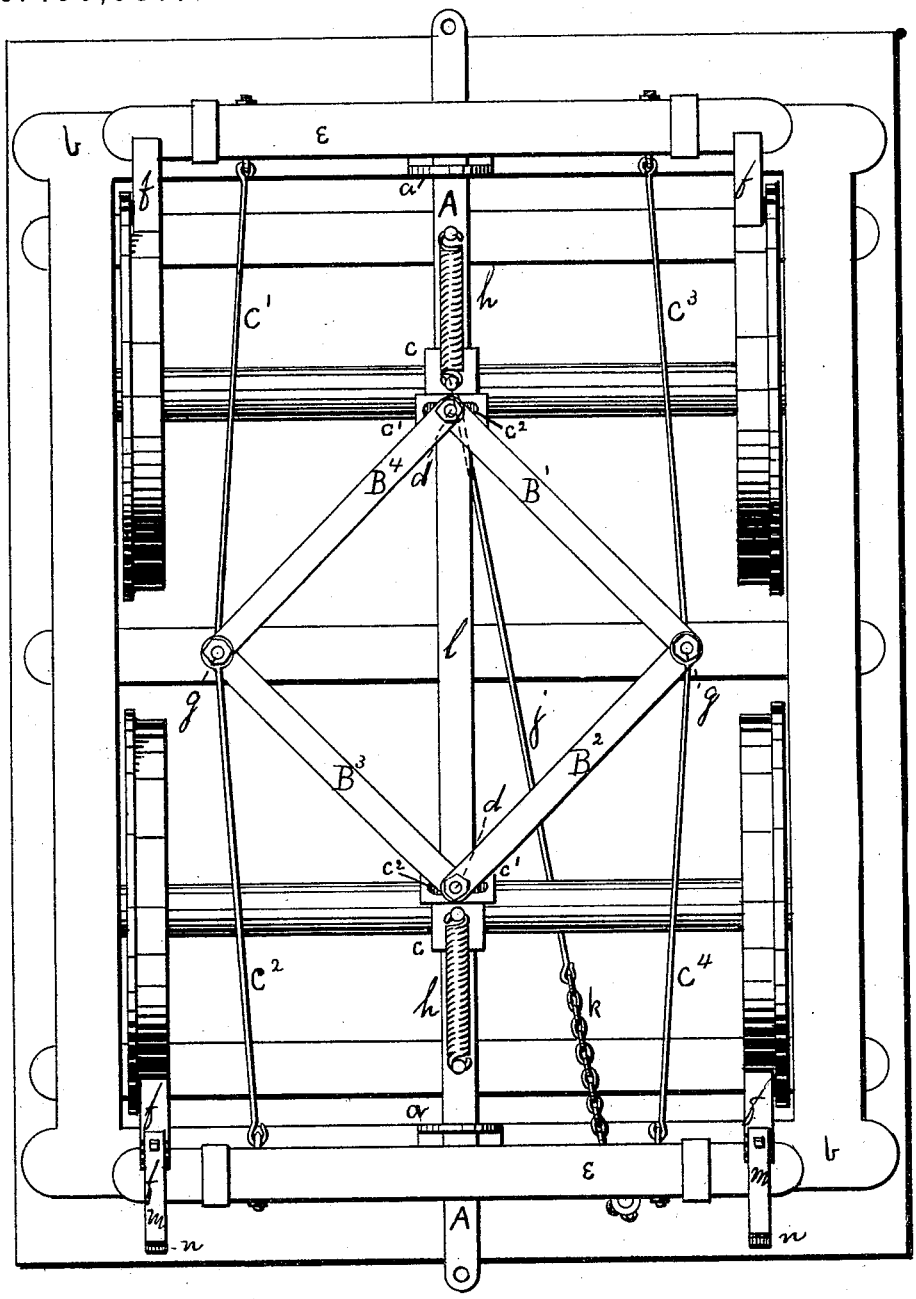
J. RADDIN.

Car-Brakes.

No. 166,937. Patented Aug. 24, 1875.



John Raddin Inventor

Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN RADDIN, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN CAR-BRAKES.

Specification forming part of Letters Patent No. **166,937**, dated August 24, 1875; application filed November 11, 1874.

To all whom it may concern:

Be it known that I, JOHN RADDIN, of Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Railway-Car Brakes, of which the following is a specification:

This invention consists, principally, in the combination of the bracket and cushion with the brake beam and shoe, substantially as and for the purpose hereinafter specified. It consists, further, in the combination of the central bar and its stops with the sliding box and its spring, substantially as and for the purpose hereinafter shown. It consists, further, in the peculiar construction of the sliding box whereby the lateral adjustment of the links is permitted, substantially as is hereinafter set forth. It consists, finally, in the combination of the continuous central bar and its stops with the toggles, substantially as and for the purpose hereinafter shown and described.

I will explain my invention by the aid of the accompanying drawing forming a part of this specification.

A is a horizontal central bar running in slotted frames dependent from the center of the cross-beams *b* of the frame-work of the truck, and carrying sliding boxes *c*, provided with downward projections c^1, slotted at c^2 to receive and hold the head of the bolt *d*, which plays therein and fastens toggles or links B^1, B^2, B^3, and B^4 thereto. Two parallel brake-rods, C^1 C^2 and C^3 C^4, at an equal distance from central bar A, connect the brake-beams *e*, carrying the brake-shoes *f*. The rods are jointed midway at the center of their length by bolts *g* or other suitable fastening, and are united at that point to the ends of links B^1 B^2 and B^3 B^4, respectively, connecting them with the sliding boxes *c* on the central bar. Two springs, *h*, attached to the sliding boxes *c* and to the bar A at points toward the ends of the bar, serve to release the brake-shoes from the wheel by pulling the links back into position, though the recoil, when the brake is let go, is generally sufficient to throw the shoe from the wheel. The boxes *c* are prevented from sliding on the bar, other than toward its center, by suitable projections or stops on the bar. The brake may be applied from either end of the car by the ordinary combined wheel-lever and shaft, carrying a chain-winder, in which case a brake-rod, *j*, is attached to the sliding box farthest from the end at which the brake is applied and connected with the winder by chain *k*. The slots in the sliding boxes allow the brakes to be evenly set against the wheels, giving an equal bearing of brake-shoes of varying thicknesses on the wheels.

The central bars may be provided with a draw-head in the form of an arc carrying a rod bent to the same shape holding a coupling-link, or the ordinary draw-head and draw-bar may be used, each pivoted to the bar, and the draw-bar provided with a series of holes to take up the slack. Another method of construction would be in pivoting a rod at the center *l* of the central bar A, and running it to the end of the car to be coupled to a like rod extending to the center of the bar in the next truck. By this means the braking force, when applied, will be always constant.

The brake may be applied by power direct from the engine, when the bars are thus coupled, by the Westinghouse or vacuum systems, or by hand. In each case the force applied is evenly distributed throughout the train from end to end, and prevents the bumping and rubbing on the buffers and draw-heads. This brake may be applied on all kinds of cars, freight as well as passenger.

Fastened to the bottom of the brake-shoe, and projecting downward and outward toward the rail, then up to the cross-beam carrying the brake-shoes, is a bracket of iron, *m*, which is armed from the beam to its lowest point with rubber *n* riveted thereto, and is designed to throw from the track any obstruction in the path of the wheel.

It is obvious that in order to brake on one pair of wheels alone the four links B^1 B^2 B^3 B^4, with one set of connecting-rods, C^1 C^3 or C^2 C^4, may be used, and that this arrangement would brake on one pair of wheels from one direction. It is also obvious that with the four connecting-rods and only one pair of links you can brake on both pairs of wheels from one direction; and it is also obvious that with one couple of links B^1 and B^2 or B^3 B^4, and one couple of connecting-rods C^1 C^2 or C^3 C^4, you can brake imper-

fectly from both directions; but it is preferable to use the four links and four connecting-rods for a complete apparatus.

I am aware that the patent granted to Burrows April 29, 1862, describes a self-acting brake consisting of two central bars, a pair of toggles holding fixed relation with the same and connecting-rods, and that this construction is designed to apply brakes to one car, more especially horse-cars, by the momentum of the car forcing it against the tractive power while the same is being arrested. This construction does not provide means for transmitting while using it, and it would be impossible to back the car without first locking the brake.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, with the brake beam and shoe, of the bracket *m* and cushion *n*, substantially as and for the purpose set forth.

2. The combination of the central bar A and its stops with the spring *h* and sliding box *c*, substantially as and for the purpose set forth.

3. The sliding box *c*, having slotted projection c^1, to allow of the lateral adjustment of the links, substantially as set forth.

4. In a train-brake, the combination of the continuous central bar A and its stops with the sliding toggles B^1 B^2 B^3 B^4, substantially in a square form within the line of the wheels, and the connecting-rods C^1 C^2 C^3 C^4, and brake-beams *e*, all substantially as set forth.

JOHN RADDIN.

Witnesses:
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