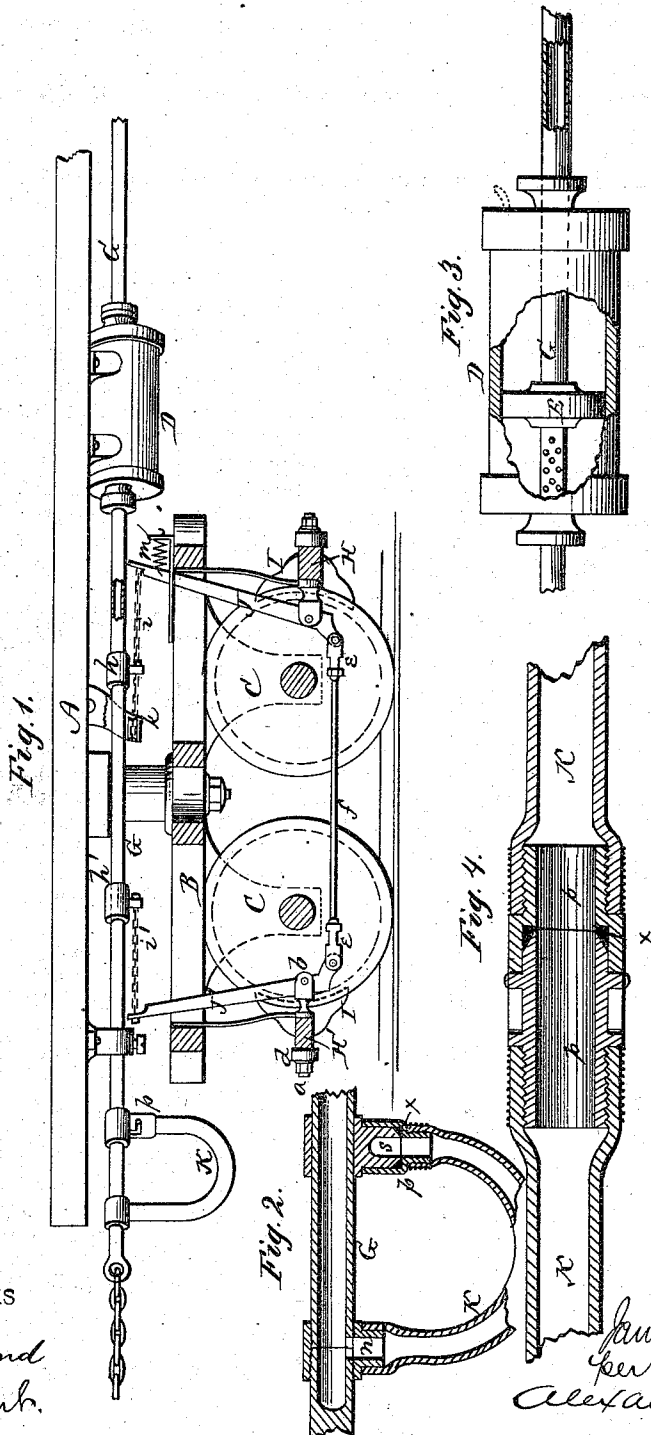


J. M. CONNEL.

Air and Steam Car-Brakes,

No. 158,912.

Patented Jan. 19, 1875.



WITNESSES

F. L. Quinlan
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INVENTOR

James M. Connel
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UNITED STATES PATENT OFFICE.

JAMES M. CONNEL, OF NEWARK, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT
TO REUBEN M. WEAVER, OF WILLIAMSPORT, PENNSYLVANIA.

IMPROVEMENT IN AIR AND STEAM CAR-BRAKES.

Specification forming part of Letters Patent No. 158,912, dated January 19, 1875; application filed
January 4, 1875.

To all whom it may concern:

Be it known that I, JAMES M. CONNEL, of Newark, in the county of Licking and in the State of Ohio, have invented certain new and useful Improvements in Car-Brakes; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in certain improvements on the car-brake for which Letters Patent No. 157,580 were granted to me December 8, 1874, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 represents the bottom or platform of a car with a longitudinal section of one of the trucks and my improved car-brake attached thereto. Fig. 2 is an enlarged section, showing the mode of cutting off the steam or air at the end of any car. Fig. 3 is a view of the cylinder, partly broken open to show the interior thereof; and Fig. 4 is an enlarged section, showing the coupling between two cars.

A represents the bottom or platform of a railroad-car. B represents one of the truck-frames thereof, with the wheels C C, all constructed in any of the known and usual ways. Under the center of the car is secured the cylinder D, provided with a piston, E, secured to a rod, G, which passes through both heads of the cylinder, and all arranged diagonally, as described in my former patent above referred to. In this case I make the piston-rod G hollow, and conduct the air or steam for operating the brakes through the same. Inside of the cylinder D, behind the piston E, the rod G is made perforated to allow the steam or air to pass into the cylinder and move or push the piston in the desired direction. H H' represent the ordinary brake-beams suspended from the truck-frame B, and provided with brake-shoes I I. Through the center of each brake-beam is passed a rod, a, formed

with a forked head, b, at its inner end, and on its outer end is placed a rubber spring, d. The forked heads b b are for the reception of levers J J' pivoted therein, thus connecting said levers to the brake-beams H H', respectively. These levers stand in inclined directions to correspond with the positions of the diagonal piston-rod G in relation to the centers of the brake-beams. The lower ends of the levers are connected together by means of a rod, f, attached to them by adjustable couplings e e, so as to be readily regulated. The upper end of the levers J J' are, respectively, connected with adjustable collars h h' on the piston-rod by means of chains i i', the chain i' passing direct to the collar h', while the chain i passes around a pulley, k, attached in a suitable bearing on the under side of the platform A, and thence to the collar h, thereby causing the movement of the upper ends of both levers inward when the piston E is moved by the admission of steam or air into the cylinder.

By this arrangement of the parts the car-brake is greatly simplified, and only one pulley is necessary between the piston-rod and the brakes.

The rubber springs d on the outer sides of the brake-beams around the rods a prevent any undue pressure of the brake-blocks, which might otherwise result in the breakage of some parts of the mechanism.

The upper end of the lever J is, by a spring, m, connected with the truck-frame B, said spring being so arranged as to operate on the lever in a direction opposite to that of the chain i. When the steam or air is shut off at the locomotive this spring at once places the levers in proper position to be again acted upon when the steam or air is turned on, and at the same time pulls the piston-rod G into its original position, bringing the piston E to its place in the cylinder, so as to be again pushed or moved by the admission of steam or air. The ends of the piston-rod G are closed and connected with the rods of the adjoining cars by chains or other equivalent means. Near each end of the piston-rod G, on the under side, is a projecting nozzle, n, to which is attached a flexible hose or pipe, K, provided with a coupling, p, at its outer end.

The flexible pipes K of adjoining cars are connected together by the couplings *p*, which are provided with what is known as "the bayonet fastening," and also with an interior packing-ring *x*, so as to make a steam or air tight joint. At the rear end of the last car in the train the coupling *p* of the flexible pipe K is fastened on a stud, *s*, attached to the piston-rod G, or to the under side of the platform A, thereby keeping the pipe out of the way, and also cutting off the steam or air.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a steam or air brake, a hollow piston-rod, which extends under the car-bottom, in combination with one or more pistons and the brake-shoes, to which it is connected, substantially as and for the purposes herein set forth.

2. The combination, with a hollow piston-

rod, G, of the adjustable collars *h h'*, chains *i i'*, and brake-levers, all substantially as set forth.

3. The spring *m*, in combination with the levers, chains, and piston-rod, as and for the purposes herein set forth.

4. The combination of the hollow piston-rod G, closed at both ends, and provided with nozzles *n*, the flexible pipes K, having couplings *p*, with packing *x* and the studs *s*, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of January, 1875.

J. M. CONNEL.

Witnesses:

C. L. EVERT,
C. M. BART.