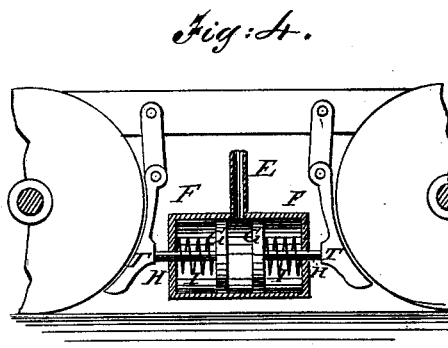
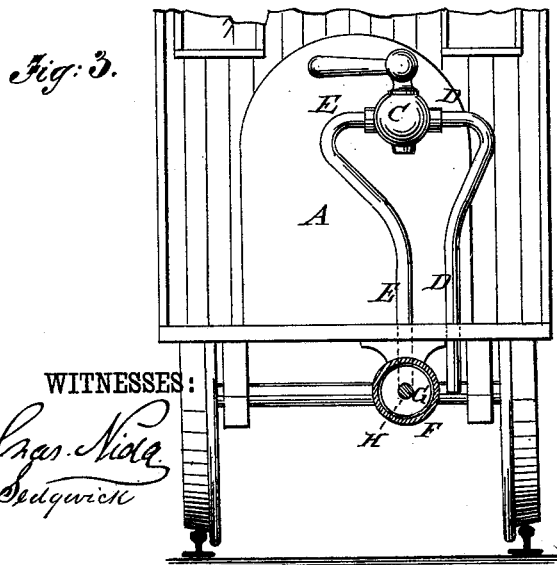
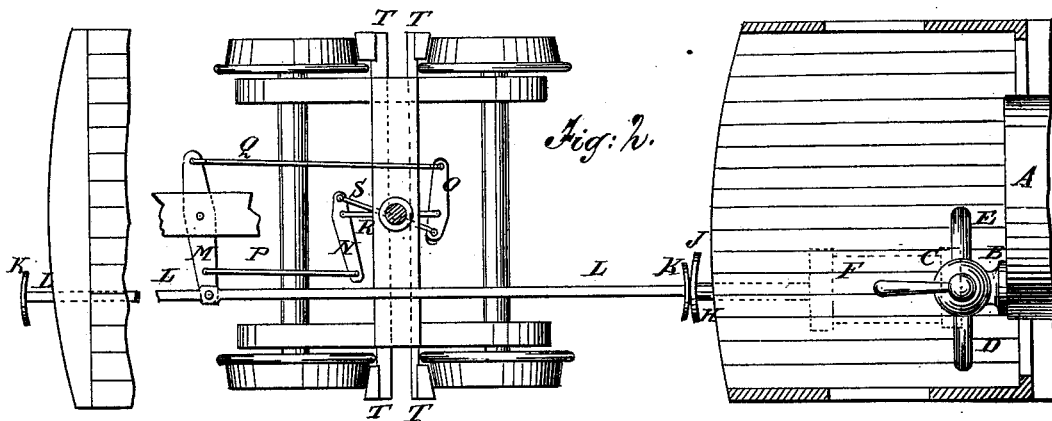
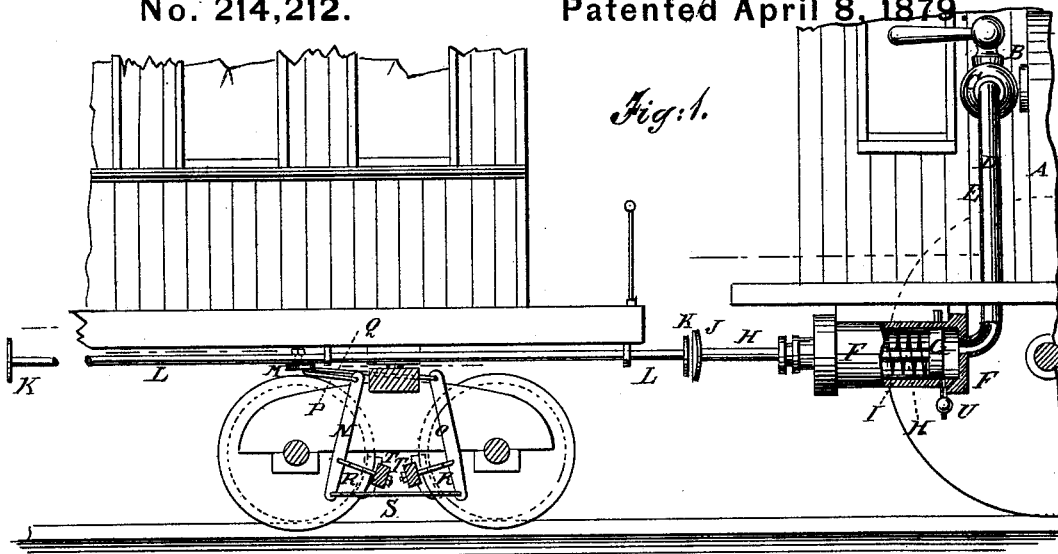


Steam Railway-Brake.

No. 214,212.

Patented April 8, 1879.



WITNESSES:

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UNITED STATES PATENT OFFICE

JESSE F. WAITE AND SANFORD GAVIT, OF TYRONE, PENNSYLVANIA.

IMPROVEMENT IN STEAM RAILWAY-BRAKES.

Specification forming part of Letters Patent No. **214,212**, dated April 8, 1879; application filed November 9, 1878.

To all whom it may concern:

Be it known that we, JESSE F. WAITE and SANFORD GAVIT, of Tyrone, in the county of Blair and State of Pennsylvania, have invented a new and useful Improvement in Steam Railway-Brakes, of which the following is a specification.

Figure 1 is a side view of our improved steam-brake, partly in section, to show the construction. Fig. 2 is a top view of the same, partly in section, to show the construction. Fig. 3 is a cross-section of the same, showing the steam-pipes and three-way cock. Fig. 4 is a detail view, showing a modification of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved steam railway-brake which shall be simple in construction, may be applied to an engine, tender, and cars at a comparatively small expense, and reliable in operation, applying and releasing the brakes instantly, and not being liable to freeze up in cold weather.

The invention consists in the combination of the three-way cock, the three pipes, the cylinder provided with the valve, the piston, the piston-rod provided with a head upon its outer end, and the spiral spring with each other, with the boiler of an engine, and with the rods placed longitudinally with the cars, having heads upon their ends, and connected with the brake-bars by levers and rods, as herein-after fully described.

A represents the boiler of an engine, from which a pipe, B, leads to a three-way cock, C. With the three-way cock C is also connected a discharge-pipe, D, and a pipe, E, leading to the rear end of the cylinder F. With this construction, when the plug of the cock C is in one position the steam will be shut off; when it is in a second position a communication will be opened between the pipes B E, admitting steam to the cylinder F; and when it is in a third position a communication will be opened between the pipes E D, allowing the steam to escape from the said cylinder F.

The cylinder F is secured to the engine beneath the foot-board, and within it works a piston, G, the rod H of which passes out through the forward end of the said cylinder

F. In the forward part of the cylinder F is placed a spiral spring, I, the forward end of which rests against the head of the cylinder F, and its rear end rests against the piston G.

With this construction, when steam is admitted into the cylinder F the piston G is pushed forward, compressing the spring I, and when the steam is shut off the spring I instantly pushes the said piston back ready to receive steam again.

To the outer end of the piston-rod H is attached a head, J, which, when the piston G is pushed forward, abuts against a similar head, K, attached to the end of the rod L. The rod L slides in supports attached to the car-frame, has a head, K, upon each end, and is connected, by the levers M N O and the rods P Q R S, with the brake-bars T, so that a longitudinal movement of the rods L will apply the brakes to all the cars at the same time.

The connecting levers and rods may be varied as the construction and arrangement of the brakes may require.

With this construction no brake-couplings are required, and the brakes are always ready to be applied.

The cylinder F is provided with a valve, U, upon its lower side for the escape of the water of condensation, and may have a heating-pipe connected with it, as a further safeguard against freezing.

In the case of large freight-engines, one cylinder may be placed under the foot-board for the tender, and one upon each side between the main and back drive-wheels, all of them being connected with the same steam and discharge pipes E D. In this case the cylinders between the drive-wheels should be provided with two pistons, G, two piston-rods, H, and two spiral springs, I, the steam being introduced at the center of the cylinder, as shown in Fig. 4; or a single cylinder may be placed directly under the center of the boiler, and arranged to operate the brakes upon both sides.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The sliding rod L, provided with the heads K, the levers M N O, the connecting-

rods Q R S, and the brake-bars T, in combination with the piston-rod H, actuated by steam from the boiler A, constructed and arranged substantially as herein shown and described.

2. The combination of the three-way cock C, the three pipes B E D, the cylinder F, provided with the valve U, the piston G, the piston-rod H, provided with a head, J, upon its outer end, and the spiral spring I, with each other, with the boiler A of an engine, and

with the rods L, placed longitudinally with the cars, having heads K upon their ends, and connected with the brake-bars by levers and rods, substantially as herein shown and described.

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Witnesses :

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