

M. A. LOVELL.
Steam-Brake.

No. 220,482.

Patented Oct. 14, 1879.

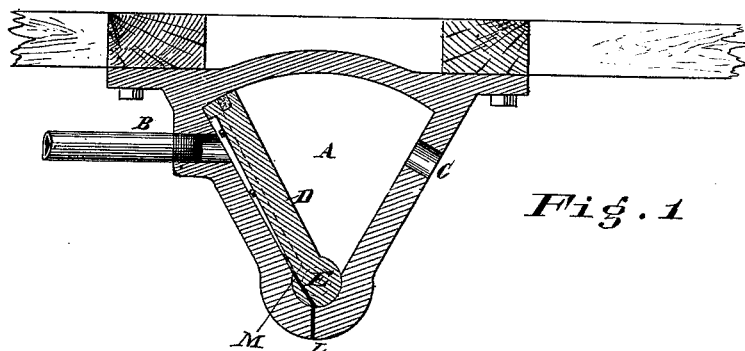


Fig. 1

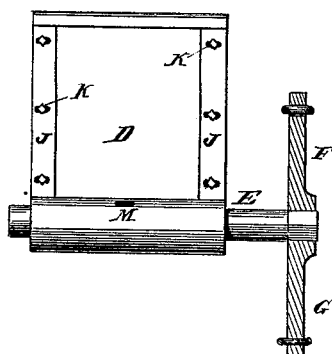


Fig. 2

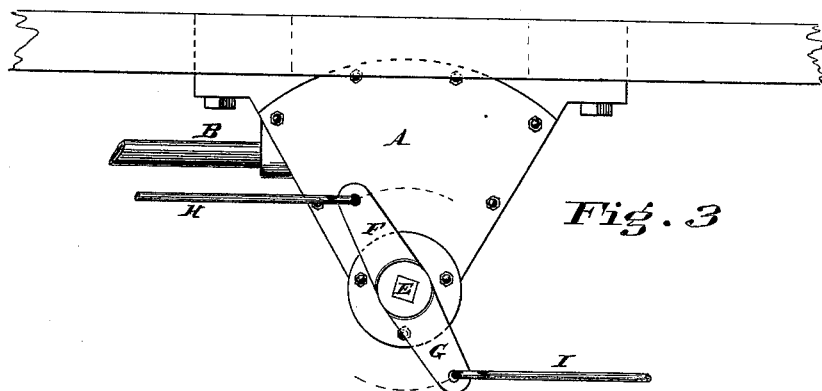


Fig. 3

Attests

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IMPROVEMENT IN STEAM-BRAKES.

Specification forming part of Letters Patent No. **220,482**, dated October 14, 1879; application filed June 26, 1879.

To all whom it may concern:

Be it known that I, MELVILL A. LOVELL, of Jersey City, county of Hudson, and State of New Jersey, have invented a certain new and useful Improvement in Steam-Brakes, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to those brakes designed for rolling-stock, and which are operated by steam, and consists in securing under each car a suitable mechanism, as hereinafter described and shown, to which steam is admitted from the locomotive by the engineer or fireman, and which admission of steam puts on the brakes.

It also consists in supplying such a steam-pipe as is necessary for the conveyance of steam from the locomotive with suitable valves, whereby the steam is admitted to the brake mechanism or the exhaust opened at will by the engineer or fireman.

The object of my invention is to make a power-brake that will be effective, and at the same time cost but little for its construction, and also one that is easily managed and operated direct from the locomotive by pressure in the boiler, doing away with all the usual air-compressing and other complicated machinery now in use.

In the drawings, Figure 1 is a section of my improved mechanism for operating the brake-shoes by steam. Fig. 2 is a side elevation of the oscillating piston of the steam-cylinder. Fig. 3 is an elevation of the mechanism embodying my invention.

A is the steam-cylinder, which is segmental in form when viewed from the side, but rectangular when looked at from the front. This cylinder is secured to the car by any suitable means. Entering one of the ends of the cylinder A is a steam-pipe, B, and in the other end is an opening, C. Working in this segmental cylinder is an oscillating piston, D, which is secured to a shaft, E, having a rotary motion imparted to it by the oscillations of the piston. The piston is suitably packed on its end and sides to prevent the escape or leak of steam. One form of packing is shown in Fig. 2, in which the faces

J J can be set by means of the bolts K K so that no steam can escape.

To allow any water from condensation of steam to escape from the cylinder A, there is a port, L, in the cylinder A, into which port another port, M, opens through the shaft E when the brakes are off.

When steam is put on, it cannot escape quickly enough by the ports M and L; hence the piston D is moved, closing the port L.

When the exhaust is opened the piston D returns, and the ports M and L come together, and any condensed steam escapes.

When the shaft E rotates it causes an oscillating motion of the two-armed lever F G, which motion is simultaneous with that of the piston D.

Attached to each end of the lever F G are rods H I, which are connected with the usual brake mechanism attached to the trucks. The rod I goes to the right truck and the rod H to the left.

The steam-pipe B is connected to the locomotive by a pipe and suitable couplings between each car, and in the locomotive are suitable valves for regulating the supply and exhaust of the steam to and from the brake mechanism situated under the various cars.

The operation is as follows: The steam from the locomotive is admitted to the cylinder A by pipe B, forcing back the oscillating piston D, which action oscillates the two-armed lever F G through the agency of the shaft E, and which lever, by means of rods H I, puts on the brakes. Any air or escaping steam is forced out of the cylinder A through the opening C by the piston D. The brakes are now on. To throw them off, the steam is allowed to exhaust itself by a valve operated by the engineer in the locomotive, when the pressure of the air, aided by a spring, if necessary, forces the piston back to its original position, when the brake-shoes are drawn off the wheels.

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

1. A segmental cylinder, A, which is less than a semicircle, supplied with a pipe B, which acts alternately as a steam and exhaust pipe, and an air-passage on the opposite side

of the piston, in combination with oscillating piston D, port M in axis of piston, and port L in cylinder A, all operating so that the brakes are put on through the agency of levers F and G, which are fast to axis E of piston, and, further, that any condensed steam within said cylinder A shall have free escape when the brakes are off, all constructed and operated substantially as and for the purpose specified.

2. The combination of cylinder A, oscillat-

ing valve D, and ports M and L, constructed so that any condensed steam within cylinder A shall have free escape when the brakes are off, substantially as and for the purpose specified.

M. A. LOVELL.

Witnesses:

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