

T. McBRIDE.
Car-Brakes.

No. 153,096.

Patented July 14, 1874.

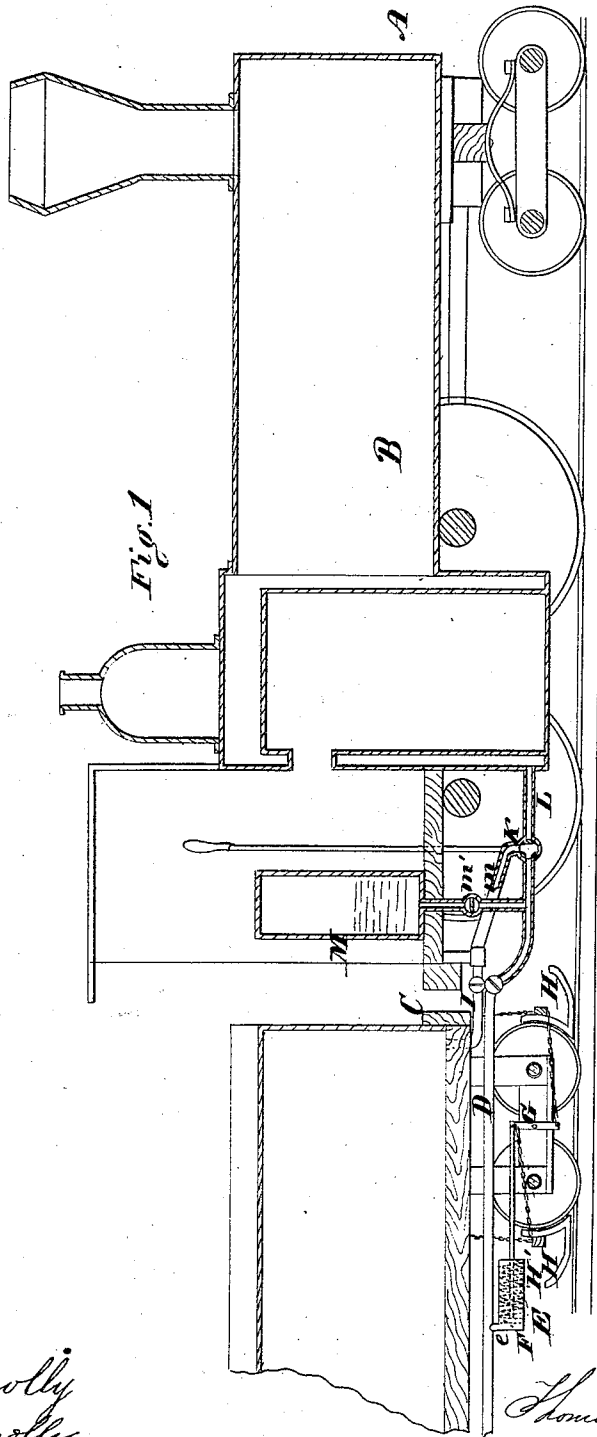


Fig. 1

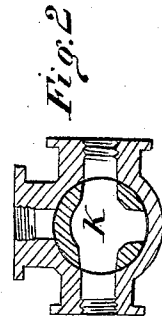


Fig. 2

WITNESSES.

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UNITED STATES PATENT OFFICE.

THOMAS McBRIDE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CAR-BRAKES.

Specification forming part of Letters Patent No. **153,096**, dated July 14, 1874; application filed July 1, 1873.

To all whom it may concern:

Be it known that I, THOMAS McBRIDE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Figure 1 is a vertical longitudinal section of the apparatus embodying my invention. Fig. 2 is a central sectional view of the three-way valve, hereinafter referred to.

The object of my invention is to provide an improved method and means for operating a railroad-brake, so that greater power, facility, and economy than have heretofore been obtained may be secured.

The nature of my invention consists in an improved construction and combination of parts, as hereinafter fully described, having reference particularly to the following points: To the combination of a three-way valve with the pipes leading to the conveying-tube from the tender and boiler, respectively, said valve being so arranged that communication may be had alternately with the tender for receiving water therefrom and returning the same thereto, and with the boiler for obtaining hydraulic pressure to be exerted upon the brakes.

Referring to the accompanying drawing, A is a locomotive, of which B is the boiler, and C a tender. D is the conveying-tube passing from the boiler to and beneath the tender and cars, having suitable devices for coupling and uncoupling, and so arranged that the contents of the tube will be held in place, whether the sections be united or apart. E is a cylinder, connected, as shown, with the tube D by pipe *e*; and F is a piston attached to the brakes H by the rock-shaft G and coupling-chains, or the like, in such manner that as the piston is forced out the brake is applied to the wheels. H' is a spring designed to retract the brake and piston after the pressure from the boiler has been withdrawn. I is a tube leading from the water-tank in the tender to the tube D, a three-way valve, K, being located at the junction of said tubes, from which leads to the boiler a pipe, L.

The operation is as follows: The valve K is first opened in such manner as to allow the water from the tender to enter and fill the tube D, passing thereto through the pipe I, and kept in this position until it is desired to apply pressure. The valve K is then turned, cutting off communication with the tender and opening it with the boiler, whereupon the boiler-pressure is at once brought to bear upon the water in the tube, forcing the pistons out and applying the brakes to the wheels.

It will be apparent that on withdrawing the pressure from the boiler, the spring which retracts the brake and pushes the piston into the cylinder will force the water which was taken from the boiler back from the tube D into the pipe I, and all or a portion of the water in said pipe I into the tender. In order to prevent this returned water from being ejected with too great force into the tender, the pipe I and that portion of the tube D between the three-way valve K and the pipe *m* are made of larger diameter than the remainder of said tube D.

By the above construction it will be seen that, communication being had with the boiler below the surface of the water, the pressure exerted is not that of steam alone, but is a water or hydraulic pressure, which is more desirable than steam.

It will also be seen that no steam is taken from the boiler, and but very little water therefrom, none of which is really wasted, being duly returned, as set forth, to the tender.

In order to avoid any possible danger from too sudden shock in applying pressure, I may use air-chambers to operate as "buffers," said chambers to be attached to or communicating with the cylinders in any usual manner.

What I claim as my invention is—

In combination with the pipes I and L, communicating, respectively, with the tender and boiler, the three-way valve K, arranged as shown and described, so that water may be taken from and returned to the tender, and the pressure of the boiler exerted on the water in the tube D alternately, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of June, 1873.

Witnesses: THOMAS McBRIDE.
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