J. N. LAUDER.

Locomotive Steam-Brake Cylinder.

No. 166,994. Patented Aug. 24, 1875.

Fig. 2.

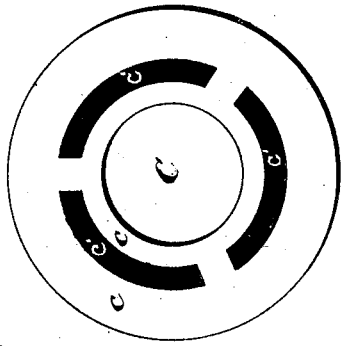
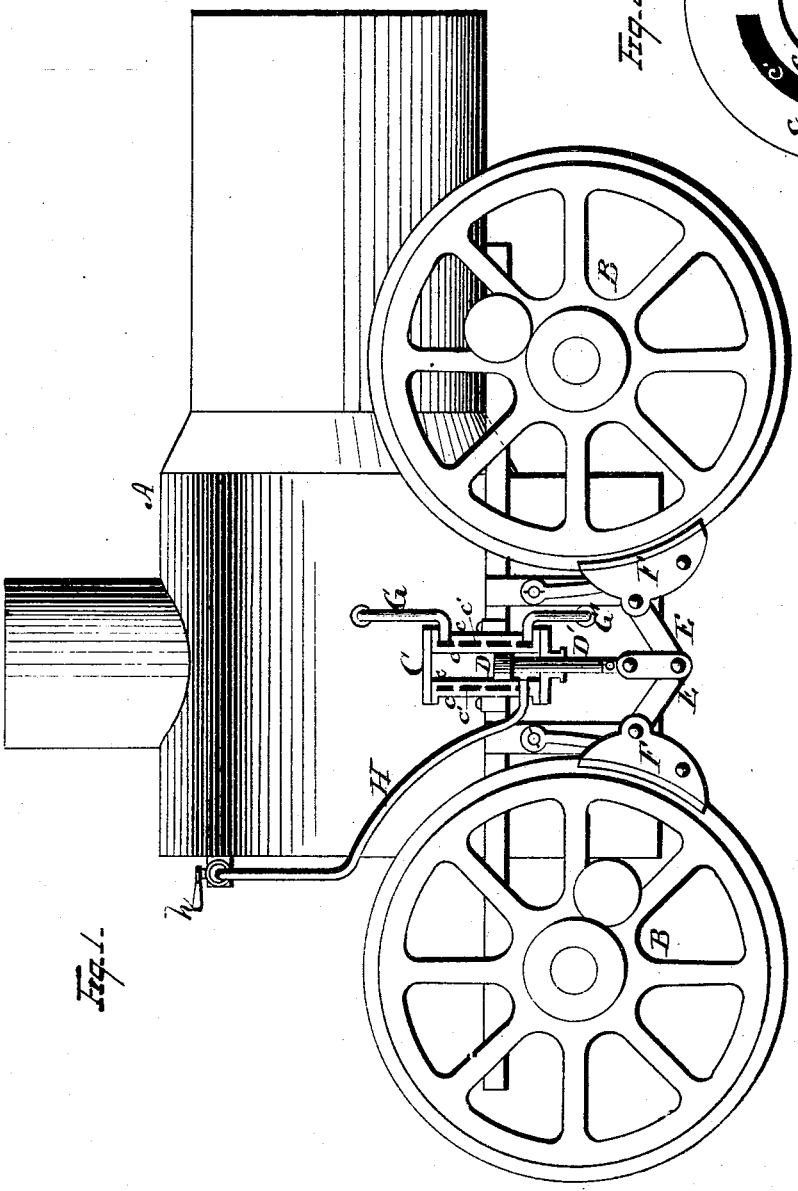


Fig. 1.



WITNESSES

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JAMES N. LAUDER, OF CONCORD, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF AND JAMES M. FOSS, OF ST. ALBANS, VERMONT.

IMPROVEMENT IN LOCOMOTIVE STEAM-BRAKE CYLINDERS.

Specification forming part of Letters Patent No. **166,994**, dated August 24, 1875; application filed July 9, 1875.

To all whom it may concern:

Be it known that I, JAMES N. LAUDER, of Concord, in the county of Merrimack and State of New Hampshire, have invented certain new and useful Improvements in Railroad-Locomotive Driving-Wheel Steam-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.

My invention relates to railroad-locomotive driving-wheel steam-brakes; and consists in providing or constructing the steam-brake cylinder, applied to the locomotive-engine, and operating on the driving-wheels thereof, with an inclosing jacket or space extending entirely around said cylinder, adapted to receive a constant supply of hot water directly from the boiler, as and for the purposes hereinafter more fully set forth and claimed.

In the drawings, Figure 1 is a side elevation of a locomotive-engine with my steam-brake cylinder applied thereto, the cylinder being shown in vertical section. Fig. 2 is a plan view of the cylinder, the head being removed.

A is the locomotive-engine, and B B the driving-wheels thereof. C is the steam-cylinder, secured directly to the side of the locomotive between the driving-wheels. D is the piston of the cylinder, the rod D′ of which is connected to the brake shoes F F by toggle joint or arms E E. The cylinder C is constructed with inner and outer walls *c c*, with an intermediate space or jacket, *c′*, extending entirely therearound from top to bottom. G is a pipe leading from the boiler of the engine to the top part of the jacket, and G′ a pipe at the bottom leading from the jacket back into the boiler, thereby securing a direct circulation of hot water, by means of these pipes, through the space or jacket around the cylinder. H is a pipe leading from the front of the boiler, where it is provided with a cock, *h*, into the lower part of the cylinder C beneath the piston D.

The operation of the parts is as follows: A constant flow of hot water is always passing into the jacket *c′*, passing around and enveloping the cylinder, and returning into the boiler through the pipe G′, keeping the cylinder always hot.

When desired to apply the brakes, steam is let into the bottom of the cylinder through pipe H, which forces up the piston D and brings the brake-shoes tight against the wheels, as is apparent.

Much trouble, expense, and inconvenience is often occasioned with steam-brakes, especially in cold weather, by the steam entering a cool or cold cylinder and partially condensing, thus losing much of its effectiveness, and oftentimes with serious consequences, on account of such condensation. My invention is intended to overcome this trouble and objection, and at all times keep the cylinder hot by the constant circulation of hot water thereabout, so that no condensation of the entering steam to operate the brakes occurs, and the full force of the steam is insured.

I am aware that brakes have before been applied directly to the driving-wheels of railroad-locomotives. This, therefore, I do not claim; but

What I do claim as new, and desire to secure by Letters Patent, is—

In a locomotive driving-wheel steam-brake, the cylinder C, constructed with double walls *c c* and intermediate space or jacket *c′*, extending therearound from top to bottom, with inlet and outlet pipes G G′, communicating therewith, and adapted to receive direct from the boiler a constant stream or circulation of hot water, as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of July, 1875.

JAMES N. LAUDER.

Witnesses:
HENRY C. MINOT,
LUTHER W. NICHOLS.