

Witnesses. { David Lewis  
Charles Lewis.

SAMUEL N. GOODDALE.

Improvement in Mode of Operating the Brakes of Railroad Cars.

No. 120,429.

Patented Oct. 31, 1871.

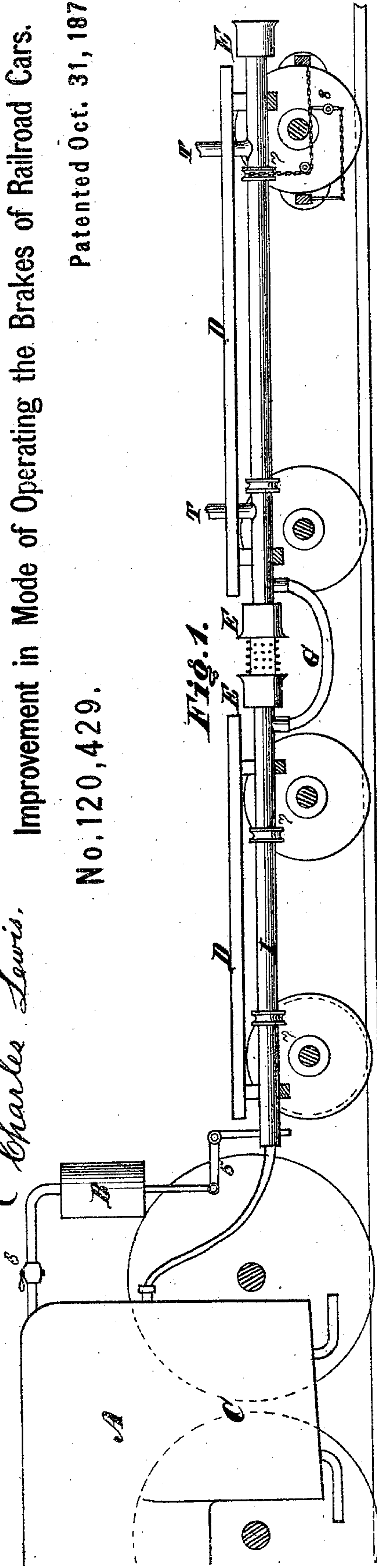


Fig. 1.

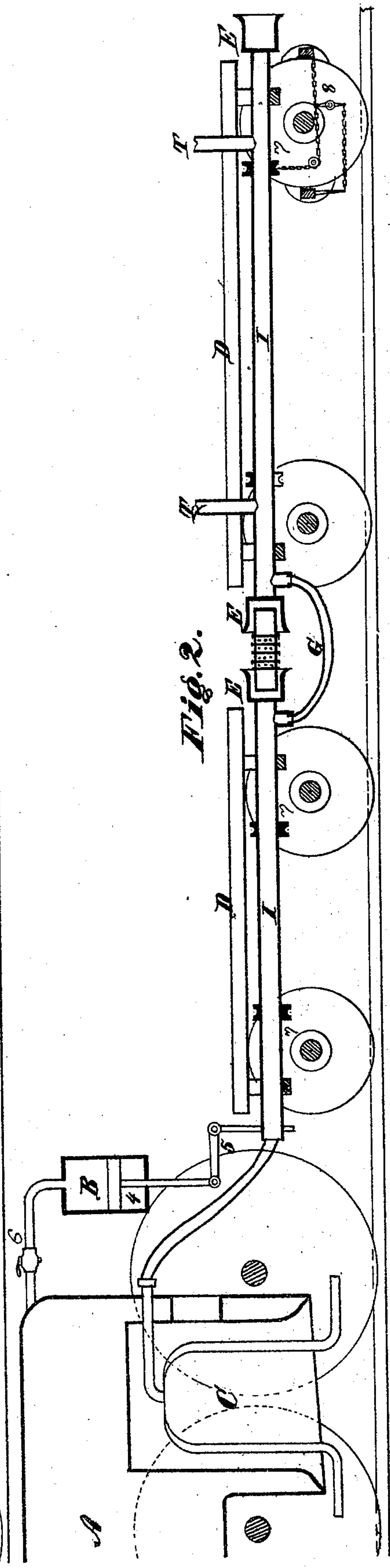


Fig. 2.

Inventor.

Sam<sup>l</sup> N. Goodale.



# UNITED STATES PATENT OFFICE.

SAMUEL N. GOODALE, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN MODES OF OPERATING THE BRAKES OF RAILROAD CARS.

Specification forming part of Letters Patent No. 120,429, dated October 31, 1871.

*To all whom it may concern:*

Be it known that I, SAMUEL N. GOODALE, of St. Louis, St. Louis county, Missouri, have invented a new and useful Improvement in the Mode of Operating the Brakes of Railroad Cars, and with the same, device and connections for heating at the same time each and every car in the train, all of which is placed under the eye and operated by the engineer, making a new and useful improvement; and I hereby declare that the following is a full and complete description of such improvement for warming each car with steam or heated air at the same time, and by the same device, and by the same engineer that the brakes are applied to each car in a railroad train, the accompanying drawing making a part of this specification, in which—

Figure 1 is a side view, and Fig. 2 a longitudinal section.

The nature of this improvement relates to heating the cars by conducting steam through the same hollow shaft or tube that is arranged for the engineer to operate the brakes with, by generating hot air in a receiver and passing it into each car, thereby introducing great economy and convenience.

In the figure, A represents a boiler, to which a steam-chest, B, is securely attached, provided with a piston, 4, with suitable packing of lead or other substance to make it steam-tight, against which steam is thrown by the engineer turning valve 6 when he wishes to check or immediately stop the train. This piston-rod is made to work the hollow shaft or tube I by means of a coupling or rod attached to the lower side of the piston and to the end of the pipe I immediately under or near the engine-tender, this pipe being placed on bearings and thus made to turn partially around and firmly fastened to the bottom of the car, as seen by D D. To the end of each pipe I I there is securely fastened, by screw or otherwise, a box or slot, into which a smooth, square, or armed coupling is inserted, as the cars are coupled together, as shown at E E, and allowed to play by the backward and forward motion of the car, this coupling being pro-

vided at the center with socket or hinge-joints, thus conforming to curvatures as well as backward and forward motion of the cars; but so secured as to turn the shaft I on any number of cars placed in the rear of the tender. To this shaft I there is firmly secured a wheel or arm, as seen at 7, to which links or rods are attached, drawing the brake firmly against each wheel, as seen by combined coupling at 8. A socket-screw is placed in each chain, so as to take up the slack or spread the brake when new blocks are added to the same. For those boilers not having sufficient surplus power to heat the cars by steam through the shafts I and tube U a heated air-chest is to be placed in the fire-box, as seen at C, connected to which are tubes passing to the lower end of the fire-box, and constructed so as to pass cold air from the outside, pressing the same into a heated chest, and forcing this heated air through connections to the tube I at K by means of coupling-joint. This connection is continued between the cars by means of a flexible tube, as shown in G, which is easily added after the cars are coupled together by means of screw or spring, thus making the connection complete through the train for steam or heated air, through which the latter may pass into the car at T; or, in the event that steam is used instead of heated air, that aperture is closed and the flexible tube transferred to steam-pipe u, which passes the steam around the car in pipe u. A coiled spring is so arranged under the piston as to throw that, together with the pipe I, back to its starting position when the pressure is removed.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement herein shown of the steam-chest B, pipe I, couplings E E, connection G, branches T, and hot-air chest C, all constructed and operating substantially as shown and described, for the purpose set forth.

SAMUEL N. GOODALE.

Witnesses:

DAVID LEWIS,  
DAN'L T. POTTER.