T. WILSON

Steam-Brake.

No. 164,066. Patented June 1, 1875.

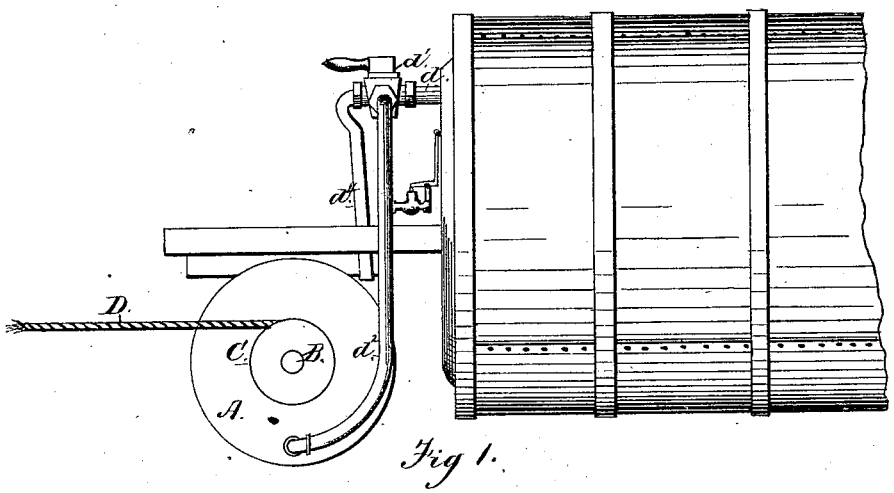


Fig 1.

Fig 2.

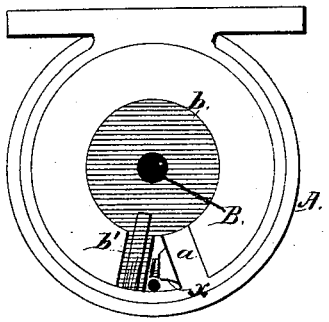
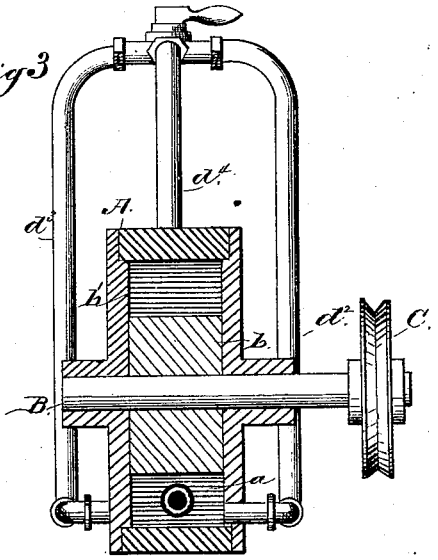


Fig3



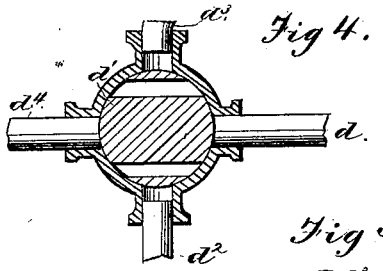


Fig 4.

Fig 5.

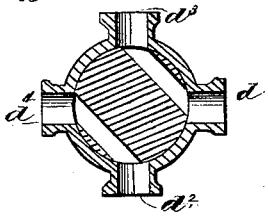
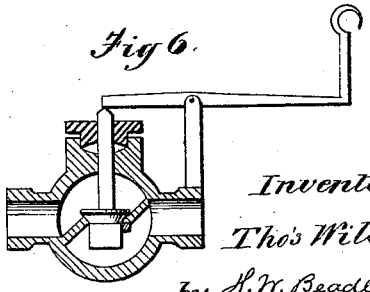


Fig 6.



Witnesses;
Harry C. Clark.
H. E. Walthews.

Inventor.
Tho's Wilson.
by H. W. Beadle & Co
attys.

UNITED STATES PATENT OFFICE.

THOMAS WILSON, OF KALAMAZOO, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE W. FIST, OF SAME PLACE.

IMPROVEMENT IN STEAM-BRAKES.

Specification forming part of Letters Patent No. **164,066**, dated June 1, 1875; application filed March 28, 1874.

To all whom it may concern:

Be it known that I, THOMAS WILSON, of the village and county of Kalamazoo, State of Michigan, have invented certain Improvements in Steam-Brakes for Railway-Cars, of which the following is a specification:

This invention consists mainly in the employment of a rotary piston adapted to make a partial revolution in a cylindrical case having a fixed bridge-piece or separating-diaphragm, in connection with a proper pipe for admitting live steam from the boiler and conducting away the exhaust; a suitable regulating-cock adapted for operation by the engineer; and proper mechanism by means of which the motion of the piston is communicated to the brake mechanism beneath the cars, the whole forming a simple and effective car-brake, as will be fully described hereinafter.

In the drawings, Figure 1 represents a perspective view of my improved car-brake as applied to the locomotive; Fig. 2, an elevation of the cylinder with one of its sides removed; Fig. 3, a transverse sectional elevation of the cylinder; Figs. 4 and 5, views of a four-way cock in section; and Fig. 6, a view of the valve for regulating the pressure in the cylinder, detached.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A represents a cylindrical case, of any proper size and suitable construction, which is provided upon its inner circumference with the fixed bridge-piece or separating-diaphragm *a*, as shown. B represents a shaft supported in proper bearings, centrally located in the sides of the cylindrical case, which is provided with a central disk, *b*, adapted in width to fill closely the space between the sides of the case, and in diameter to bear against the inner edge of the bridge-piece *a*, as shown, which has also the radial piston *b'*, adapted to fill the space between the disk and the case, as shown. C, Figs. 1 and 3, represents a pulley or its equivalent, attached to one of the sides of shaft B, as shown. D represents a chain or other suitable means for communicating the motion of the piston to the brake mechanism beneath the cars. *d* represents a pipe communicating with the interior of the boiler. d^1 represents a cock (shown in detail in Figs. 4 and 5) adapted to control the supply of steam through the connecting-pipes to the cylinder; d^2, a pipe for conveying live steam to the cylinder upon one side of the bridge-piece or separating-diaphragm; d^3, a similar pipe for conveying live steam to the other side of the bridge-piece, and d^4 an exhaust-pipe, the open end of which terminates below the foot-board of the engine.

The operation is as follows: When it is desired to check the motion of the cars the regulating-cock is turned by the engineer in such manner as to admit live steam from the boiler, through the pipes d d^2, into the cylinder between the piston and the bridge-piece, by means of which the piston is caused to turn in the cylinder, and, by means of the shaft, pulley, and connecting-chain, apply power to the brake mechanism beneath the cars. The brakes are thus applied and held until a reverse movement of the handle of the regulating-cock, as shown in Fig. 5, shuts off the connection with the boiler and opens communication between pipe d^2 and the exhaust d^4.

This same movement may also, if desired, admit live steam to the other side of the bridge-piece, through pipe d^3, for the purpose of giving the piston its return movement; but this is not absolutely essential, as it may be accomplished by the reaction of the brakes or by other proper means.

The bridge-piece is provided with a proper buffer-block, *x*, by means of which it is prevented from being injured by the return movement of the piston.

The chain communicating with the cars is so arranged that the full force of the brakes is applied before the piston makes a complete revolution.

Any suitable mechanism may be employed beneath the cars to apply the power to the brakes.

Some of the advantages of the described construction are as follows: The cylindrical case being compact in form, it may be located upon the engine near the boiler, and be connected thereto by short pipes. By this means the liability of the steam to condense in cold weather

is materially reduced, both on account of proximity to the hot boiler and the shortness of the pipes.

By locating the same upon the engine, also, the necessity of coupling-joints between the engine and tender is avoided.

As the cylinder is connected directly with the boiler, and as the entire steam-pressure is borne thereby, it is desirable, as a matter of precaution, to use a safety-valve, as shown in Figs. 1 and 6, between it and the boiler, which may be regulated to increase or diminish the pressure, according to the number of the cars in the train.

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

The car-brake described, consisting of the piston B b', adapted to make a partial revolution in the cylinder C, the live-steam and exhaust pipes d d^2 d^4, the regulating-cock d^1, adapted for operation by the engineer, and the intermediate devices C D, for communicating the movement of the piston to the brake mechanism, the parts being relatively so arranged that the brakes are fully applied before the piston can make a complete movement, substantially as described.

THOMAS WILSON.

Witnesses:
OSCAR T. TUTHILL,
VOLNEY E. BURKE.