

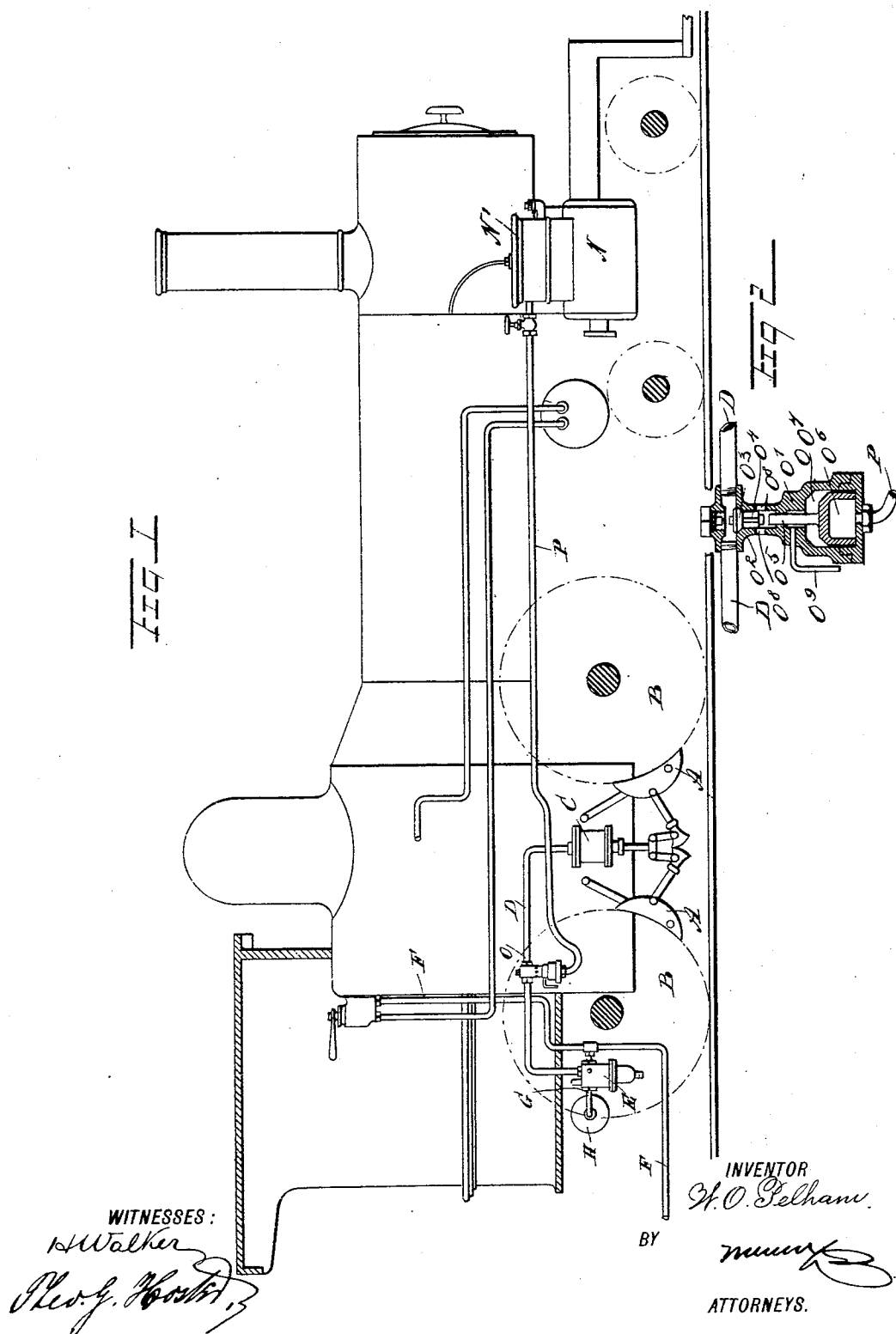
(No Model.)

W. O. PELHAM.

RELEASING DEVICE FOR BRAKES OF DRIVE WHEELS.

No. 586,455.

Patented July 13, 1897.



# UNITED STATES PATENT OFFICE.

WALTER O. PELHAM, OF DENISON, TEXAS, ASSIGNOR OF ONE-HALF TO  
HENRY LOOMIS, OF SAME PLACE.

## RELEASING DEVICE FOR BRAKES OF DRIVE-WHEELS.

SPECIFICATION forming part of Letters Patent No. 586,455, dated July 13, 1897.

Application filed March 5, 1897. Serial No. 626,163. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER O. PELHAM, of Denison, in the county of Grayson and State of Texas, have invented a new and Improved Releasing Device for the Brakes of Drive-Wheels, of which the following is a full, clear, and exact description.

The invention relates to a releasing device for fluid-pressure air-brakes—such, for instance, as shown and described in Letters Patent No. 529,948, granted to me under date of November 27, 1894.

The object of the present invention is to provide certain new and useful improvements in releasing devices for the brakes of drive-wheels of locomotives, whereby the brakes are instantaneously released at the time the train is in motion and before the braked drive-wheels are on the point of sliding on the rails, also before the triple valve acts to release the brakes, as described and claimed in the patent above referred to.

The invention consists of an exhaust device for the brake-pipe independent of the triple valve and controlled by back pressure in the steam-chest of the locomotive.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation of the improvement as applied, parts of the locomotive being in section; and Fig. 2 is an enlarged sectional side elevation of the improvement.

As illustrated in Fig. 1, the brakes A for the drive-wheels B of the locomotive are connected in the usual manner with the brake-cylinder C, connected by the brake-pipe D with the triple valve E, having connection with the train-pipe F, and by the pipe G with the auxiliary reservoir H.

In the brake-pipe D is arranged an exhaust device O (shown in detail in Fig. 2) and connected by a small pipe P with the steam-chest of the locomotive-cylinder N, so that back pressure from the steam-chest N' can pass

through the pipe P into the valve-body O' of the said exhaust device O.

The valve-body O' is preferably made in the shape of a T, having its horizontal portion interposed in the brake-pipe D, as is plainly shown in the drawings, and in the said body O' is formed a valve-seat O<sup>2</sup>, on which is normally seated a valve O<sup>3</sup>, so as to close the brake-pipe to the vertical part of the body O'. The under side of the valve O<sup>3</sup> is provided with a wing O<sup>4</sup>, adapted to be engaged by the stem O<sup>5</sup> of a piston-valve O<sup>6</sup>, adapted to be seated on a seat O<sup>7</sup>, formed in the lower portion of the body O', and which lower portion is connected with the pipe P. The valve O<sup>3</sup> and the piston-valve O<sup>6</sup> are arranged in such a manner that when the valve O<sup>3</sup> is held on its seat O<sup>2</sup> by gravity or by the action of a spring then the piston-valve O<sup>6</sup> is in a lowermost position, but when a back pressure from the steam-chest of the locomotive-engine passes into the pipe P, as previously described, then the said piston-valve O<sup>6</sup> is forced upward onto its seat O<sup>7</sup>, so that the valve O<sup>3</sup> is unseated by the stem O<sup>5</sup> engaging and lifting the wing O<sup>4</sup>, and communication is then established between the brake-pipe D and exhaust-ports O<sup>8</sup>, formed in the valve-body O'. (See Fig. 2.) A vent-pipe O<sup>9</sup> leads into the upper end of the piston-valve cylinder to permit the piston-valve O<sup>6</sup> to readily rise and fall in the cylinder. Now it will be seen that by the arrangement described the valve O<sup>3</sup> is unseated on back pressure from the steam-chest, so that the air in the brake-pipe D is exhausted, and consequently the pressure of the air in the brake-cylinder C is reduced, whereby the brakes A are released instantaneously to prevent sliding of the drive-wheels B at the time the train is in motion and before the triple valve E is set in action, as described and claimed in the patent previously referred to. Thus it will be seen that the drive-wheel brakes A are instantaneously released whenever the engineer applies the brakes on the cars and simultaneously reverses the engine, as the back pressure from the steam-chest will exert a pressure on the piston-valve O<sup>6</sup> to open the brake-pipe D to the outer air at

the ports O<sup>8</sup>, as previously explained, so that the brakes A are released instantaneously. It is understood that the exhaust of the brake-pipe pressure through the ports O<sup>8</sup> is much quicker than could be had from the release of the triple valve, and hence a quicker release of the brakes is obtained.

The arrangement shown in the drawings is capable of releasing the brakes of air, steam, or vacuum brake systems, and the only change necessary for using it on a vacuum-brake is the employment of a spring of sufficient strength to hold the valve O<sup>8</sup> to its seat O<sup>2</sup> while the vacuum is formed in the brake-cylinder C, as otherwise any pressure from the steam-chest would cause the piston-valve O<sup>6</sup> to be forced up against its seat and the valve O<sup>8</sup> off its seat to release the brakes by admitting air.

It is understood that by the arrangement described the drive-wheel brake-release is governed by a fluid-pressure from the steam-chest, and this fluid-pressure is air when the throttle-valve is closed while the engines are being reversed and steam when there is back pressure in the cylinders and steam-chest.

The object of releasing the engine-brakes at the time the engine is reversed is to prevent the wheels from sliding on the rails and being injured by a flattening of the tires.

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

1. An automatic drive-wheel brake-release, provided with an exhaust device, independent of the triple valve, connected with the brake-pipe, and controlled by back pressure in the steam-chest, substantially as shown and described.

2. An automatic drive-wheel brake-release, provided with a valve mechanism arranged in the brake-pipe, and connected with a pipe leading to the steam-chest of the locomotive-engine, the said valve mechanism having a valve adapted to establish communication between the brake-pipe and the outer air, substantially as shown and described.

WALTER O. PELHAM.

Witnesses:

J. A. CUMMINS,  
W. J. MURRIN.