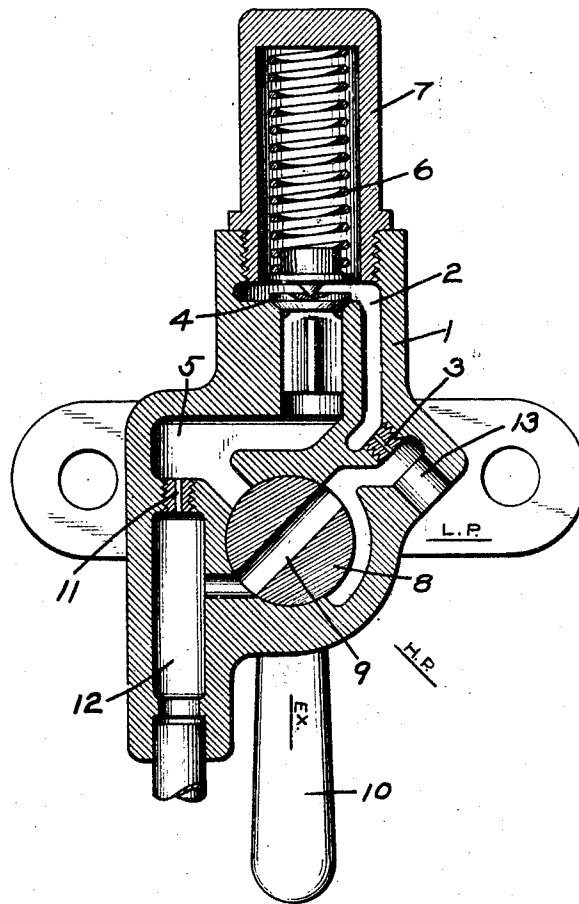


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W. E. DEAN
FLUID PRESSURE BRAKE
Filed Feb. 24, 1925



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UNITED STATES PATENT OFFICE.

WILLIAM E. DEAN, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO THE WESTINGHOUSE AIR BRAKE COMPANY, OF WILMERDING, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

FLUID-PRESSURE BRAKE.

Application filed February 24, 1925. Serial No. 11,033.

To all whom it may concern:

Be it known that I, WILLIAM E. DEAN, a citizen of the United States, residing at Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Fluid-Pressure Brakes, of which the following is a specification.

This invention relates to fluid pressure brakes, and more particularly to a brake cylinder pressure retaining valve device.

It has heretofore been the common practice to use a brake cylinder pressure retaining valve for retaining a predetermined degree of pressure in the brake cylinder, so that the brakes will not be entirely released during the period when the brake pipe pressure is being increased to effect the recharge of the braking system. To this end, retaining valves designed to retain different amounts of brake cylinder pressure, according to their adjustment, have been used effectively under certain conditions.

However, it has been found that grade conditions are encountered where to retain a predetermined amount of brake cylinder pressure would reduce the speed of the train below the point deemed necessary for safe operation, and on the other hand, if the brakes are allowed to be fully released in the usual way, the speed of the train is liable to be increased to a point inconsistent with safe operation of the train.

According to my invention, it is proposed to meet both of the above stated conditions by providing adjustable means for either retaining a predetermined degree of pressure in the brake cylinder or to allow the pressure in the brake cylinder to pass directly to the atmosphere, but to restrict the rate of flow thereof, so that the system may be safely recharged without unnecessarily decreasing the speed of the train on light grades.

The principal object of my invention is to provide retaining valve means of the character outlined above.

In the accompanying drawing, the single figure is a sectional view of a retaining valve device embodying my invention.

As shown in the drawing, the retaining valve device may comprise a casing 1, having a valve chamber 2, connected to atmosphere through a choked passage 3 and containing a valve 4, for controlling communi-

cation from a chamber 5 to the chamber 2, said valve being subject on one side to the pressure of a spring 6, which is contained in a cap nut 7 having screw threaded engagement with the casing 1.

Also contained in the casing 1 is a plug valve 8, having a through port 9 and adapted to be operated by a handle 10. The chamber 5 is connected by a restricted passage 11 with a chamber 12, which in turn is connected to the exhaust port of the brake application valve, such as the usual triple valve device.

The plug valve 8 has three operating positions, namely; exhaust position, high pressure position, and low pressure position. In exhaust position of the valve 8, the port 9 connects the chamber 12 and the brake application valve exhaust pipe directly to atmospheric port 13, thereby permitting fluid from the brake cylinder to flow freely to atmosphere.

In high pressure position of the valve 8 the port 9 is blanked, so that fluid from the brake cylinder is forced to flow from chamber 12 through the restricted passage 11 to chamber 5. If the pressure in the brake cylinder is of sufficient degree to overcome the pressure of spring 6, it will raise the valve 4 and pass to chamber 2, thence through the restricted passage 3 and atmospheric port 13 to atmosphere.

In low pressure position the port 9 of the valve 8 connects the chamber 5 with atmospheric port 13, thereby permitting the pressure in the brake cylinder and chamber 12 to flow through the restricted passage 11, thence through port 9 and atmospheric port 13 to atmosphere.

While it will be understood that the pressure of the spring 6 may be varied, in accordance with the opinion of different operating officials, it is recommended that a comparatively light spring be used, for example, ten pounds, and that the size of the restricted ports be so fixed as to give ample time for recharging the braking system without definitely retaining pressure in the brake cylinder.

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

1. A retaining valve device comprising a retaining valve and a manually operated valve for controlling communication from

the brake cylinder through said retaining valve device and having a position for venting fluid from the brake cylinder through a restricted passage directly to the atmosphere.

5 2. A retaining valve device comprising a retaining valve and a manually operated valve having one position for directing the flow of fluid through a restricted port
10 directly to the atmosphere, and another position in which fluid flows through said restricted port and past said retaining valve to the atmosphere.

3. A valve device for controlling the ex-

haust of fluid from the brake cylinder comprising a retaining valve and a manually operated valve having one position for directly connecting the exhaust from the brake cylinder to the atmosphere through a restricted port, and another position in
20 which the brake cylinder exhaust flows through said restricted port, past said retaining valve, and through a second restricted port to the atmosphere.

In testimony whereof I have hereunto set
25 my hand.

WILLIAM E. DEAN.