

(No Model.)

2 Sheets—Sheet 2.

G. WESTINGHOUSE, Jr.

REGULATING VALVE FOR RAILWAY BRAKES.

No. 251,980.

Patented Jan. 3, 1882.

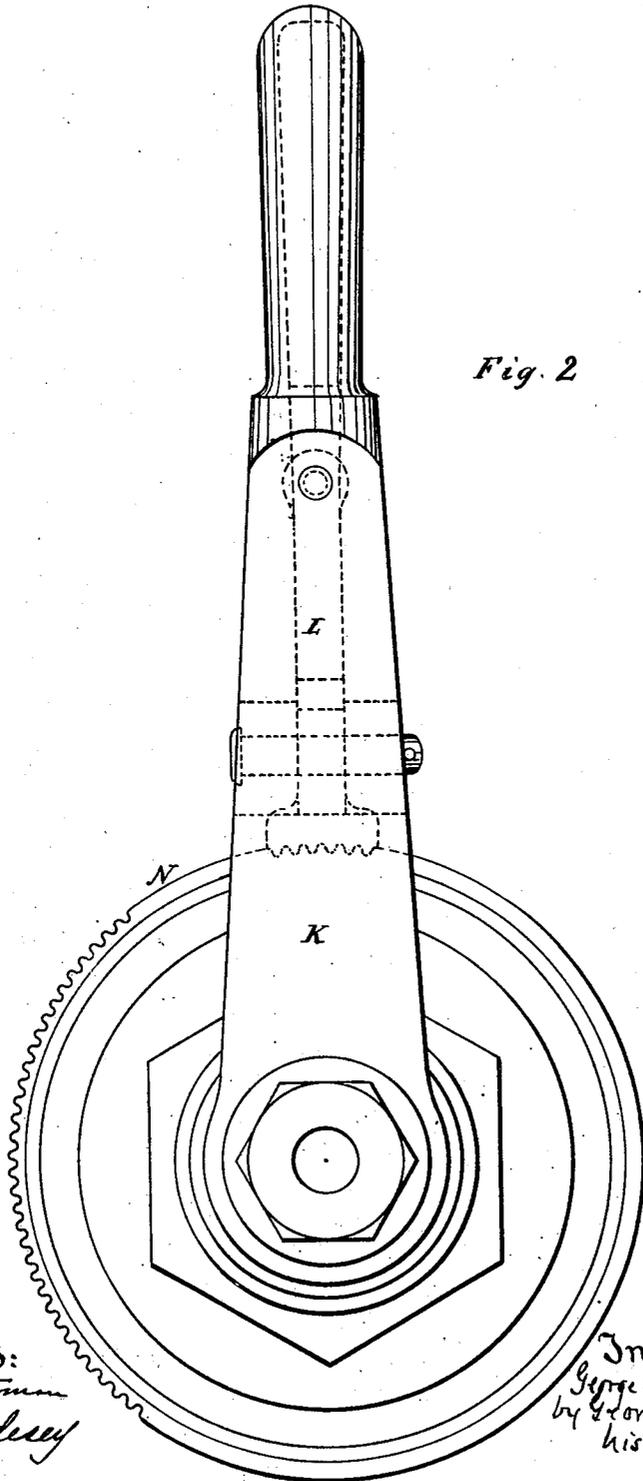


Fig. 2

Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

REGULATING-VALVE FOR RAILWAY-BRAKES.

SPECIFICATION forming part of Letters Patent No. 251,980, dated January 3, 1882.

Application filed August 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WESTINGHOUSE, Jr., a citizen of the United States, residing at Pittsburg, Pennsylvania, have invented a new and useful Improved Regulating-Valve for Railway-Brakes worked by Fluid-Pressure, of which the following is a specification.

For working brakes of a railway-train by fluid-pressure the engine-driver usually employs a regulating-valve, by which he can either admit fluid under pressure into the pipe which conveys it along the train, or he can more or less relieve the pressure in the train-pipe.

My invention relates to the construction and arrangement of a regulating-valve for this purpose in a compact and convenient form, giving facilities for delicate regulation, as I will describe, referring to the accompanying drawings, of which—

Figure 1 is a longitudinal section of the valve-box, and Fig. 2 is a front view, showing the working-handle and its spring-catch.

The valve-box has two nozzles—A, which is connected to the main reservoir or supply of fluid under pressure, and B, which is connected to the train-pipe. These nozzles open from two compartments of the valve-box, separated by a valve, C, which is pressed to its seat by a spring, *c*.

Attached to the valve C is another valve, D, the attachment consisting of a cross-pin, *d*, which has certain freedom in the hole of the stem of D, through which it passes. The valve D seats on a hole in the center of a piston, E, on the face of which is a flexible diaphragm, F, secured at its outer edge between the two parts of the valve-box, which are screwed together. The compartment of the valve-box on the other side of the piston E communicates with the outer air by passages G, there being free passages to this compartment when the valve D is unseated by the hole through the piston and cross-holes *e*. The stem of the piston E has a shoulder, against which butts one end of a spring, H, whose other end butts against a plug, *k*, which is screwed into the lever-handle K. The boss of this handle has on it a screw-thread, L, working in an internal

thread of the valve-box. The handle K is provided with a spring-catch lever, M, the lower end of which has teeth that can engage with teeth cut in the periphery of a ring, N, that is clamped between the two parts of the valve-box, the lever K being held in any desired position by the engagement of the spring-catch with these teeth. When the driver desires to admit fluid under pressure into the train-pipe, he turns the handle K so that its boss screws inward, pressing the piston F toward the left. The valve D is thus firmly seated, but the valve C is raised from its seat, and fluid under pressure, entering by the nozzle A, passes the valve C, and flows, by the nozzle B, to the train-pipe. When the driver desires to let fluid escape from the train-pipe, and thereby reduce the pressure in the pipe, he turns the handle K in the opposite direction, unscrewing its boss, and so relieving the pressure of the spring H on the piston E. The pressure of the fluid in the train-pipe, acting on the piston E, forces it back, and the valve C being seated, the pin *d* holds the valve D while the piston retreats from it, and thereupon fluid from the pipe flows by the nozzle B, past the valve D, through the piston and the lateral apertures *e*, and escapes by the passages G. When the pressure in the pipe is so far reduced by escape of fluid that the force of the spring H overcomes the pressure on the piston E, the piston automatically advances, so as to close the valve D and prevent further escape from the pipe. As the driver by turning the handle K more or less can more or less relieve the spring H, he can delicately adjust the pressure in the train-pipe, and can thus cause the brakes to be applied with greater or less rapidity and force, as circumstances may require.

The diaphragm F may obviously be dispensed with if the packing of the piston E be sufficiently tight to prevent leakage of fluid past the piston. As such packings and the cylindrical surface against which they work become worn, the diaphragm F is of advantage to prevent leakage when the fluid employed is compressed air. When a liquid under pressure or steam is employed the diaphragm should be dispensed with and the passages G should be connected to a return-pipe.

Although I have shown the valves C and D as separate pieces loosely connected by a pin, they might be rigidly connected and yet operate as described, the looseness of the connection being merely adopted to allow for slight inequalities of workmanship and fitting.

Having thus described the nature of my invention and the best means I know of carrying it out in practice, I claim—

10 A regulating-valve for railway-brakes, having in combination the nozzles A B, valves C

D, hollow piston E, having lateral ports *e*, escape-port G, springs *c* and H, handle K, and screw-plug *k*, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 5th day of August, A. D. 1881.

GEORGE WESTINGHOUSE, JR.

Witnesses:

JOHN IMRAY,

JNO. P. M. MILLARD.