GEORGE WESTINGHOUSE, Jr.

Improvement in Relief Valves for Steam Air Brake Cylinders.

No. 124,403. Patented March 5, 1872.

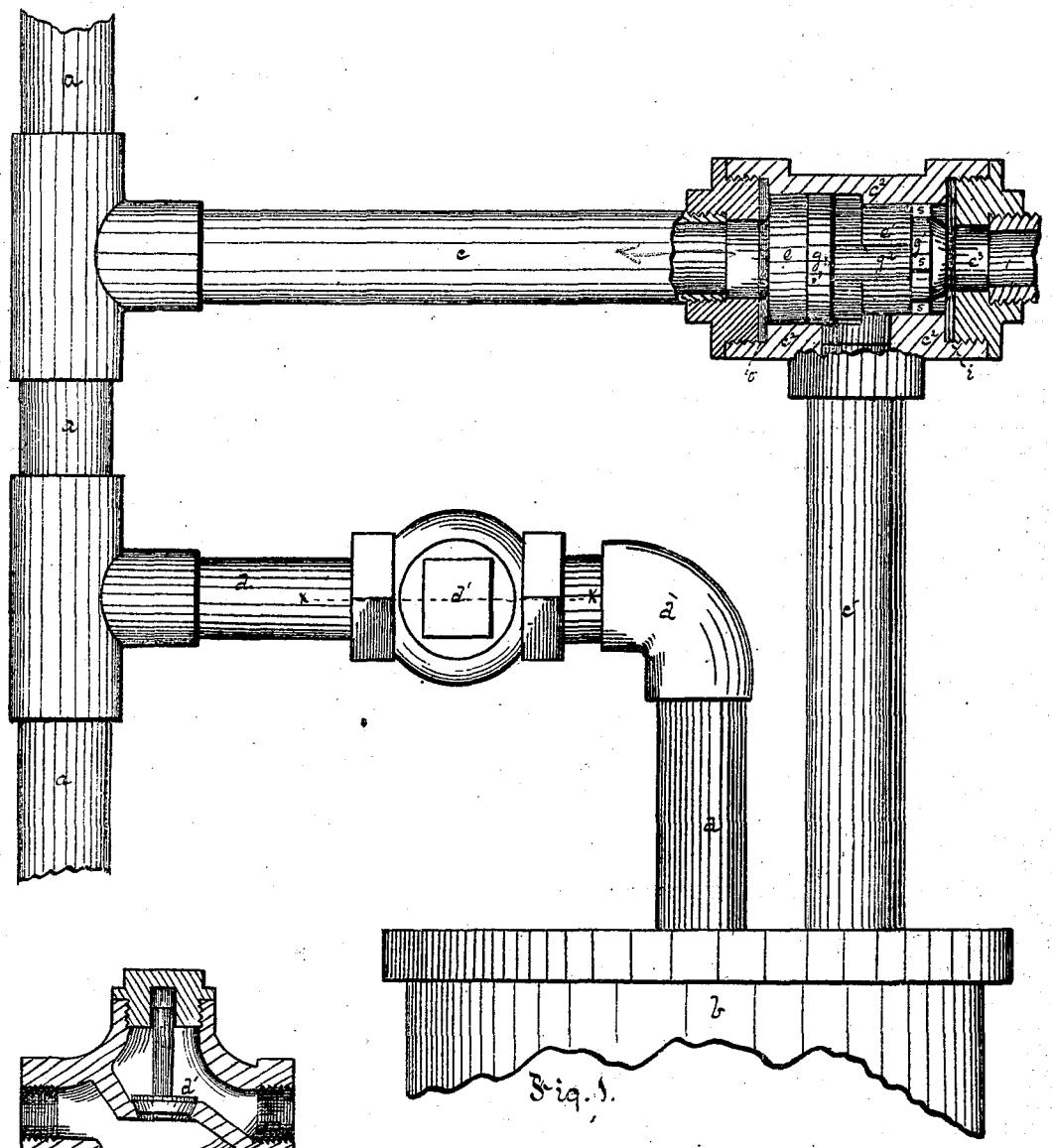

Fig. 1.

Fig. 2.

Witnesses:
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124,403

UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN RELIEF-VALVES FOR STEAM AIR-BRAKE CYLINDERS.

Specification forming part of Letters Patent No. 124,403, dated March 5, 1872.

To all whom it may concern:

Be it known that I, GEORGE WESTINGHOUSE, Jr., of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Relief-Valve for Steam-Power Air-Brake Cylinders; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view, partly in section, of my improved apparatus; and Fig. 2 is a sectional view through *x x*, Fig. 1.

My invention relates to the construction and combination of devices appertaining to steam-power air-brake apparatus, and more particularly designed for letting the air escape suddenly and rapidly from the brake-cylinder, so that the brakes shall be let off with equal suddenness and rapidity.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and mode of operation.

The pipe *a* extends through the train, and communicates at its forward end with the compressed-air reservoir or other device for generating or storing air-pressure. Under each car is arranged the usual brake-cylinder *b*. The air-pipe *a* and brake-cylinder *b* are connected together by the pipes *c*, c^1, and *d*. The pipe *d* is fitted with a check-valve, *d'*, of the usual or any known construction, such that when the compressed air is admitted or forced into the pipe *a* it will be free to flow through the check-valve *d'* into the cylinder *b*, and apply the brakes in the usual way; but as soon as the engineer turns the cock to allow the air to escape from the pipe *a* the back pressure of air from the cylinder *b* will seat the valve *d'*, and close all communication. To provide for the escape of the air from the cylinder *b* I make use of the pipes *c* c^1. The pipe *c* has at its outer end a valve-case, c^2, containing a chamber larger at one end, *e*, than at the other, *e'*. The pipe c^1 opens into this valve-chamber at or about midway between its ends. The chamber *e e'* contains the valves *g* g^1, affixed to a common stem, g^2, the distance between the outer faces of the valves *g* g^1 being somewhat less than the length of the valve-chamber *e e'*, and the valve *g* being the larger of the two, and of about the same diameter as its part of the chamber *e*. The smaller valve g^1 is somewhat less in diameter than its part *e'* of the chamber, and has guides or wings *s*, through or between which the air may pass in escaping. The outer end of the valve-case c^2 is open at c^3.

It will now be obvious that, when the compressed air is turned on, not only will it flow through the pipe *d* into the brake-cylinder, as already described, but also it will, passing into the pipe *c*, press against the outer face of the valve *g*, and seat the valve g^1 on its elastic seat *i*, and thus close the escape c^3, and keep it closed; and as soon as air is allowed to escape from the pipe *a* sufficiently to lessen the pressure therein, not only will the check-valve *d'* be seated, as already described, but also the pressure of the air in the cylinder *b*, acting through the pipe c^1, will act against the inner face of the valve *g;* and since its area is greater than that of the valve g^1, it (the valve *g*) will be thrown over to its seat *o*, thus closing the pipe *c*, and lifting the valve g^1 from its seat, so as to open the escape c^3. The air is then free to escape from the cylinder *b*, flowing out between the wings *s*. The brakes are thus let off almost instantly, and the train is ready for a start.

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

The double valve device *g* g^1 g^2 as a relief-valve for the cylinder *b*, when combined with a check-valve, *d'*, arranged with pipe-connections, substantially as described.

In testimony whereof, I, the said GEORGE WESTINGHOUSE, Jr., have hereunto set my hand.

GEO. WESTINGHOUSE, JR.

Witnesses:
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