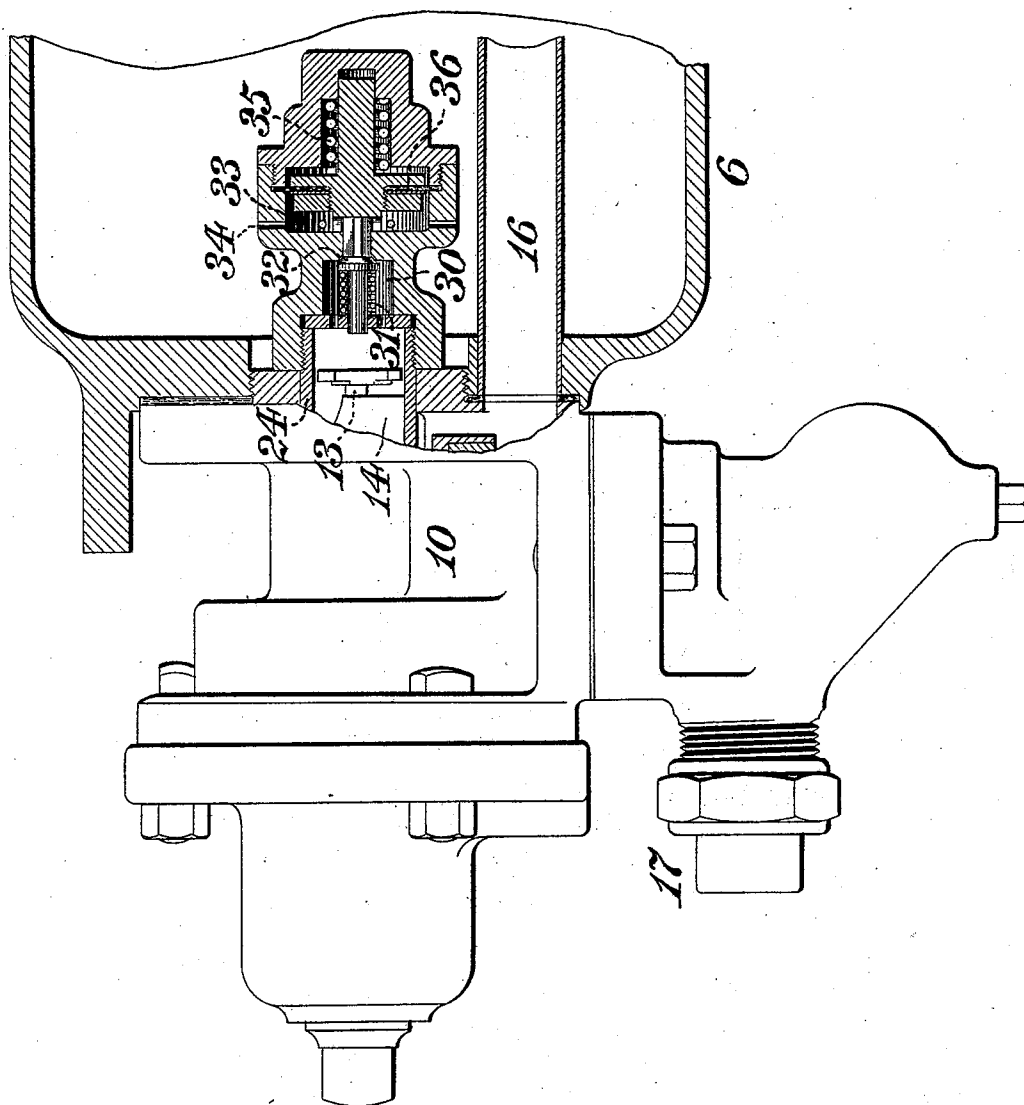


(No Model.)

R. W. BAYLEY.
AIR BRAKE.

No. 528,712.

Patented Nov. 6, 1894.



WITNESSES:

R. H. Whittelsey
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INVENTOR,

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UNITED STATES PATENT OFFICE.

RICHARD W. BAYLEY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE
WESTINGHOUSE AIR BRAKE COMPANY, OF SAME PLACE.

AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 528,712, dated November 6, 1894.

Application filed November 23, 1891. Serial No. 412,792. (No model.)

To all whom it may concern:

Be it known that I, RICHARD W. BAYLEY, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Air-Brakes, of which improvement the following is a specification.

The object of my invention is to enable the admission of compressed air to the auxiliary reservoir of an automatic air brake apparatus, which is effected by the triple valve thereof, to be automatically regulated so that the degree of pressure in the auxiliary reservoir shall be limited to any desired and determined maximum.

To this end, my invention, generally stated, consists in the combination with a triple valve, of a direct acting pressure regulating device controlling communication between the triple valve and an auxiliary reservoir.

The improvement claimed is hereinafter fully set forth.

The accompanying drawing is a view, partly in elevation and partly in section, of a triple valve and a portion of a connected auxiliary reservoir, illustrating an application of my invention.

The triple valve 10 which is herein shown is, in all essential structural and operative features, and saving as to the supplemental members to be presently specified, similar to those of the present standard Westinghouse pattern, which, being well known in the art, need not be herein particularly and at length described.

In the practice of my invention, the chamber or bushing 24, in which the slide valve 14 of the triple valve operates, is not, as in the ordinary construction, open directly to the auxiliary reservoir 6, but is connected, at its end adjoining the auxiliary reservoir, to a regulating valve chamber 30, which communicates, through an opening controlled by a regulating valve 32, with a regulator chamber 33. The chamber 33 communicates, through a series of continuously open ports or passages 34, with the auxiliary reservoir 6, and is fitted with a movable abutment, in this instance a flexible diaphragm 36, which abuts against a stem or series of guiding wings fixed

to the regulating valve 32, which is, on its opposite side, subject to the pressure of a spring 31, the action of which spring is, when unopposed by a greater force, to close and hold seated the valve 32. A spring 35 of greater tension bears against a plate or collar on the side of the diaphragm 36 farthest from the valve 32, the spring 35 forcing the diaphragm against the stem or guiding wings of the valve 32, and acting normally to unseat and hold said valve open. The spring 35 is so adjusted that its tension and resultant unseating action on the valve 32 will be overcome by the exertion of the determined maximum auxiliary reservoir pressure upon the opposite side of the diaphragm 36.

In operation, air under pressure admitted to the triple valve 10 through the train pipe connection 17, for the purpose of charging the auxiliary reservoir 6, passes to and through the slide valve bushing 24 in the ordinary manner, and thence past the regulating valve 32, which is normally held open by the spring 35 and diaphragm 36, to the chamber 33, and through the ports 34 of said chamber to the auxiliary reservoir 6. As soon as the determined maximum pressure is admitted to the auxiliary reservoir, such pressure, acting upon the diaphragm 36, overcomes the tension of the spring 35 and releases the pressure of the diaphragm upon the valve 32, which is thereupon closed by its spring 31, cutting off further admission of air to the auxiliary reservoir. Upon a reduction of pressure in the train pipe, made for the purpose of applying the brakes, the resultant reduction of pressure in the slide valve bushing or chamber 24 causes the valve 32 to be unseated by the then higher pressure in the auxiliary reservoir 6 and chamber 33, and the tension of the spring 35, and compressed air from the auxiliary reservoir is thereby admitted to the brake cylinder, through the passage 16, in the ordinary manner. The valve 32 remains open, after having been thus unseated, until again closed by the charging of the auxiliary reservoir to the determined maximum pressure as before described.

I am aware that constructions have been proposed, prior to my invention, in which the degree of auxiliary reservoir pressure has

been automatically regulated, coincidently with and proportionately to, variations of the load upon the car trucks, by means of valves controlling the flow of air under pressure from the train pipe to the auxiliary reservoir, said valves being actuated through lever systems connected to the car body and having fulcrums which are varied in position in and by variations by load. Instances of such appliances are set forth in Letters Patent Nos. 430,024 and 458,626, granted and issued to Henry S. Hopper, under dates of June 10, 1890, and September 1, 1891, respectively.

I do not therefore broadly claim the combination of a triple valve and a pressure regulating device, as my invention contemplates only constructions in which limitation of maximum auxiliary reservoir pressure is effected directly by a pressure regulator, through the action in opposite directions of fluid pressure and of a spring.

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

1. In an automatic air brake apparatus, the combination, with an auxiliary reservoir, and

a train pipe, of a pressure regulating device adapted to limit the pressure supplied to the auxiliary reservoir to a predetermined degree, independent of any increase or excess of train pipe pressure above the normal, substantially as set forth.

2. In an automatic air brake apparatus, the combination of a triple valve casing, a slide valve chamber or bushing therein, a regulator chamber connected thereto, a regulating valve controlling communication between the slide valve chamber and regulator chamber, a closing spring bearing on said valve, a movable abutment working in the regulator chamber and abutting against the regulating valve, an opening spring bearing against said abutment, and one or more open ports or passages leading out of the regulator chamber, substantially as set forth.

In testimony whereof I have hereunto set my hand.

RICHARD W. BAYLEY.

Witnesses:

J. SNOWDEN BELL,
JOHN F. MILLER.