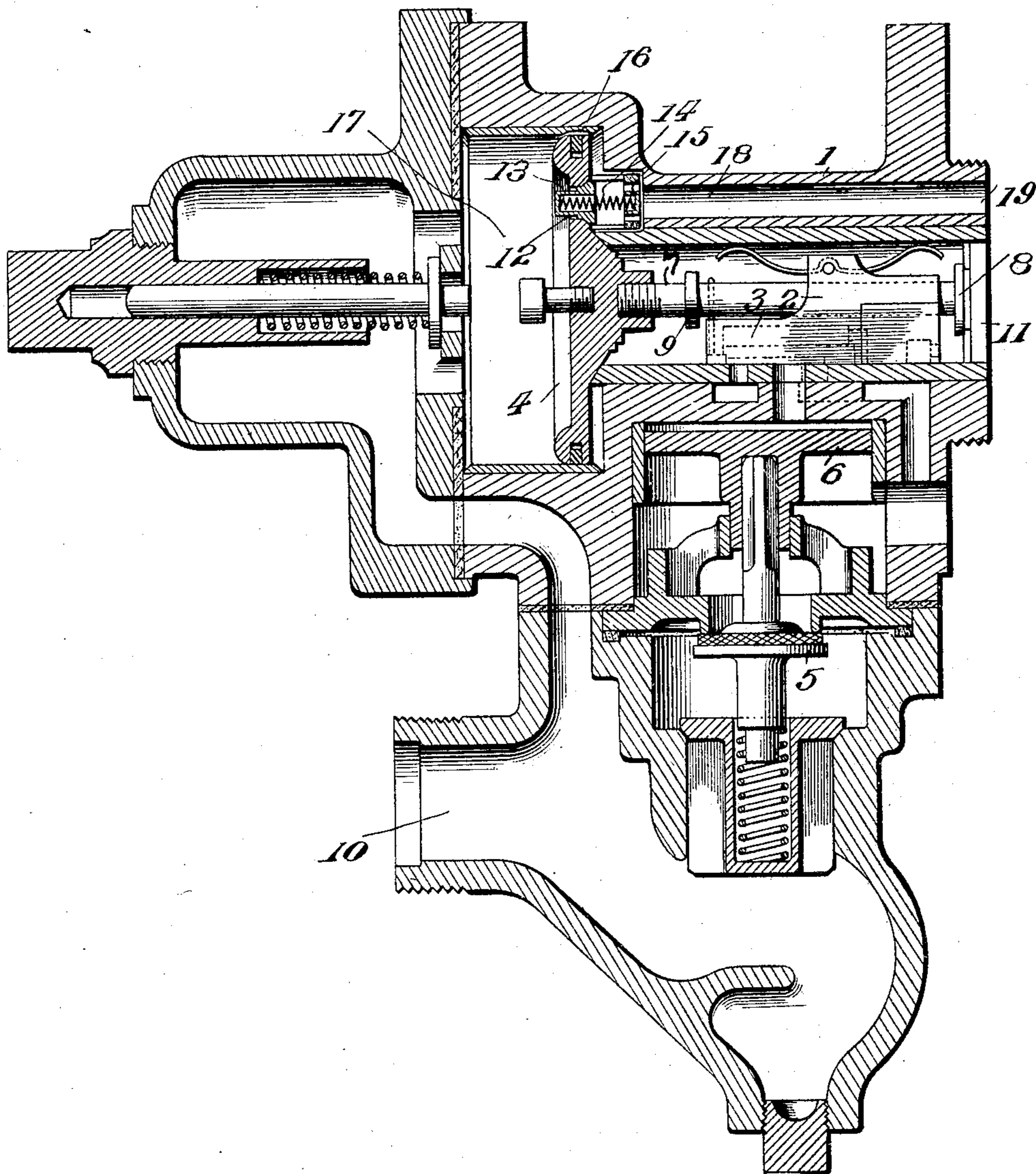


No. 836,886.

PATENTED NOV. 27, 1906.

W. B. MANN.  
QUICK RECHARGING TRIPLE VALVE.  
APPLICATION FILED JULY 1, 1903.



Witnesses  
Gustave A. Thompson  
William B. Berkman

Inventor  
William B. Mann

By  
Eugene Lewis Massey  
Attorneys

# UNITED STATES PATENT OFFICE.

WILLIAM B. MANN, OF BALTIMORE, MARYLAND, ASSIGNOR TO AMERICAN AIR-BRAKE COMPANY, A CORPORATION OF NEW JERSEY.

## QUICK-RECHARGING TRIPLE VALVE.

No. 836,886.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed July 1, 1903. Serial No. 163,949.

*To all whom it may concern:*

Be it known that I, WILLIAM B. MANN, of Baltimore, Maryland, have invented a new and useful Improvement in Quick-Recharging Triple Valves, which invention is fully set forth in the following specification.

This invention relates to air-brakes for railway-trains, and more particularly to the triple-valve mechanism.

10 In a well-known form of triple valve now in use, known as the "quick-action" triple valve, there is provided the usual main valve and graduating-valve and actuating-piston therefor, and in addition thereto there is provided an auxiliary valve with an auxiliary-valve-operating piston. This auxiliary valve is designed to secure the quick serial venting of the train-pipe into the brake-cylinder upon the emergency application of the brakes. 20 In the triple valve as thus constructed the recharging of the auxiliary reservoir from the train-pipe takes place through a restricted port, through which the air slowly feeds from the train-pipe side of the main-valve-actuating piston to the auxiliary-reservoir side thereof. This action is necessarily quite slow, and the result is that when the pressure in the auxiliary reservoir has become largely depleted a second application of the brakes 30 cannot be made until sufficient time has elapsed for the air to slowly pass from the train-pipe into the auxiliary reservoir through the restricted port around the main-valve piston.

35 In certain classes of braking, notably on trains making very frequent stops and upon street-car service, it is exceedingly desirable to have the auxiliary reservoir instantly recharged and ready for the immediate action of the brakes with full braking pressure.

40 The object of the present invention is to provide means whereby the old triple valve, constructed as above described, with the main valve, graduating-valve, and main-valve-actuating piston, together with the auxiliary valve and auxiliary-valve-operating piston, may be employed as heretofore, but instead of the slow recharging of the auxiliary reservoir may be provided with means 50 for instantaneously recharging the same.

To this end the invention consists in a triple valve composed of the parts above specified provided with a port leading through the valve-operating piston from the

train-pipe side of said piston to the auxiliary-reservoir side thereof, which port is controlled by a check-valve opening toward the auxiliary reservoir, said port and valve being situated in that portion of the piston between its center and its periphery. 60

The invention will be understood in connection with the accompanying drawing, which is a central vertical section of a triple valve with the invention applied thereto.

Referring to the drawing, 1 is a triple-valve casing, 2 is the main valve, 3 is the graduating-valve, 4 the main-valve-operating piston, 5 is the auxiliary valve, and 6 is the auxiliary-valve-operating piston, all of the usual and well-known construction. The valve-stem 7 is provided with shoulders 8 and 9 for operating the main valve in the well-known way in this art. Between the train-pipe port 10 and the auxiliary-reservoir port 11 there is interposed a port 12, passing through the body of the main-valve-operating piston 4, between its center and its periphery, which port is controlled by a valve 13, opening toward the auxiliary reservoir and against the tension of a spring 14, reacting between said valve 8c and an abutment 15.

16 is the ordinary feed or leak-in port passing around the piston 4 from the train-pipe side to the auxiliary-reservoir side thereof, and 18 is a suitable passage leading from the chamber 17, in which the piston 4 is placed, to the auxiliary reservoir, with which it communicates at the point 19. 85

While the port 12, which is controlled by the valve 13, is here shown as communicating directly with the conduit 18, leading to the auxiliary reservoir, it will of course be understood that said port might, if desired, lead directly into the valve-chamber, which chamber communicates at its right-hand end with the auxiliary reservoir in the usual way. 95

The operation of the device as thus constructed is as follows: Assuming the auxiliary reservoir to be empty and train-pipe pressure to be admitted via the train-pipe, the piston 4 will be forced from the left to the right in the drawing, assuming the position shown in such drawing, whereby the passage of air from the auxiliary reservoir and to the brake-cylinder is closed and the port leading from the brake-cylinder to the atmosphere is open. At the termination of the stroke of the piston 4 from left to right the valve 13 105

will be raised from its seat by reason of the excess of pressure on the train-pipe side thereof, and air will pass from the train-pipe side of the piston 4 in large volume to the auxiliary reservoir, instantly charging the same to train-pipe pressure or very nearly so, the difference being only such as would be due to the pressure of spring 14. The full equalization between train-pipe and auxiliary-reservoir pressure will be secured by a gradual feed of air through the port 16, leading around the periphery of the piston 4, as in the old and well-known construction.

It will be apparent that I have thus provided means whereby the old and well-known quick-action triple valve now in use can be also utilized as a quick-recharging valve in those cases where it is found desirable to obtain instantaneous recharging of the auxiliary reservoir to braking pressure.

Having thus described the invention, what is claimed is—

1. In a triple valve for air-brakes, a main-valve-operating piston which carries between its center and its periphery a valve normally held closed by auxiliary-reservoir pressure, a spring bearing upon said valve and so ad-

justed that when the pressure from the auxiliary reservoir is reduced below that of train-pipe pressure the valve will automatically open to admit air from the train-pipe to the auxiliary reservoir.

2. In a triple valve for air-brakes, the combination of a valve-casing having ports leading respectively to the train-pipe, the auxiliary reservoir and the brake-cylinder, a main valve, a graduating-valve and a main-valve-operating piston, a conduit separate from the main-valve chamber and extending from the auxiliary reservoir to the main-valve-operating piston-chamber, a quick-action feed-valve carried by said operating-piston between its center and periphery and controlling a port in said piston registering with said conduit, and a spring acting on said valve in opposition to train-pipe pressure.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM B. MANN.

Witnesses:

E. J. GODMAN,  
LEVEN J. GWINN.