

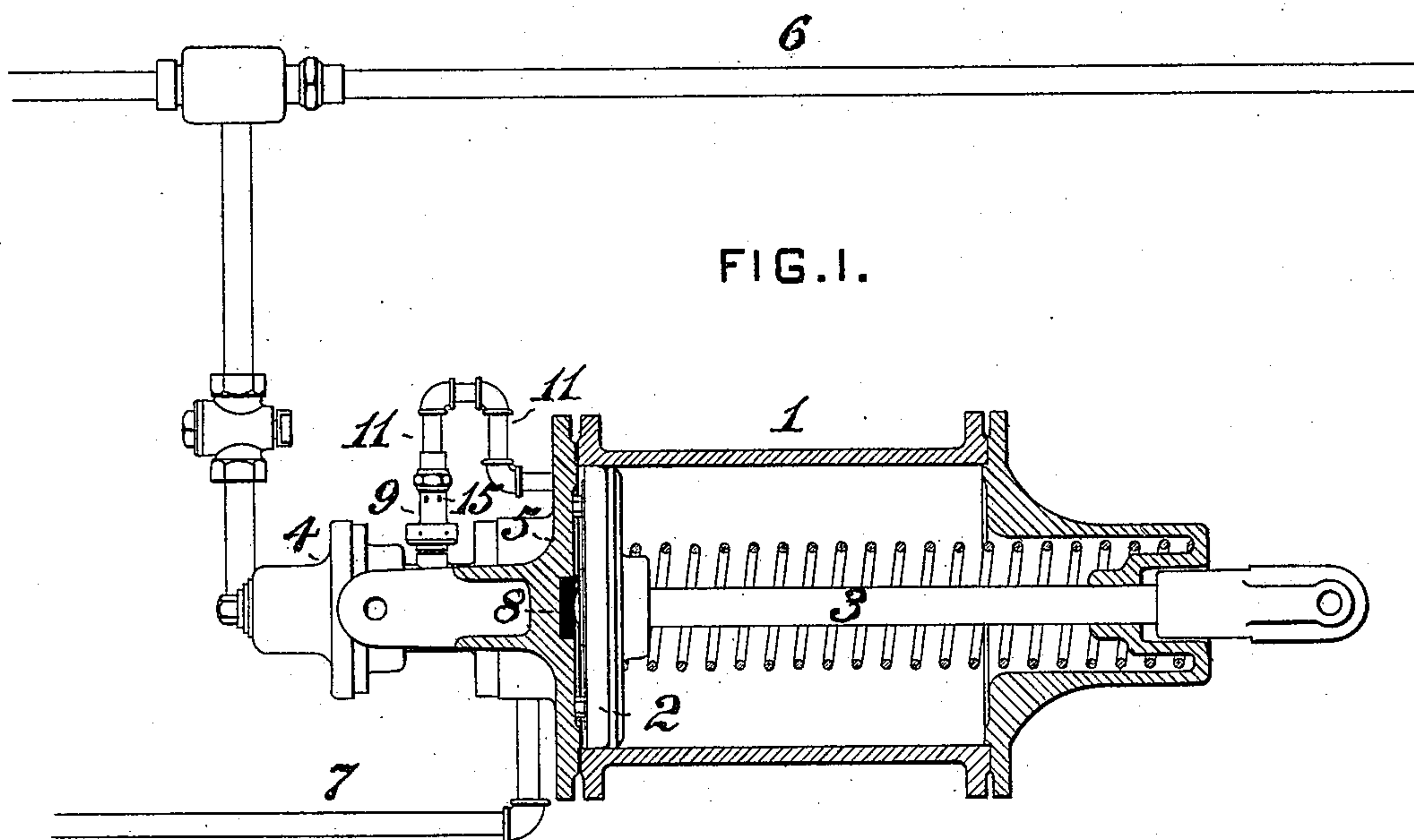
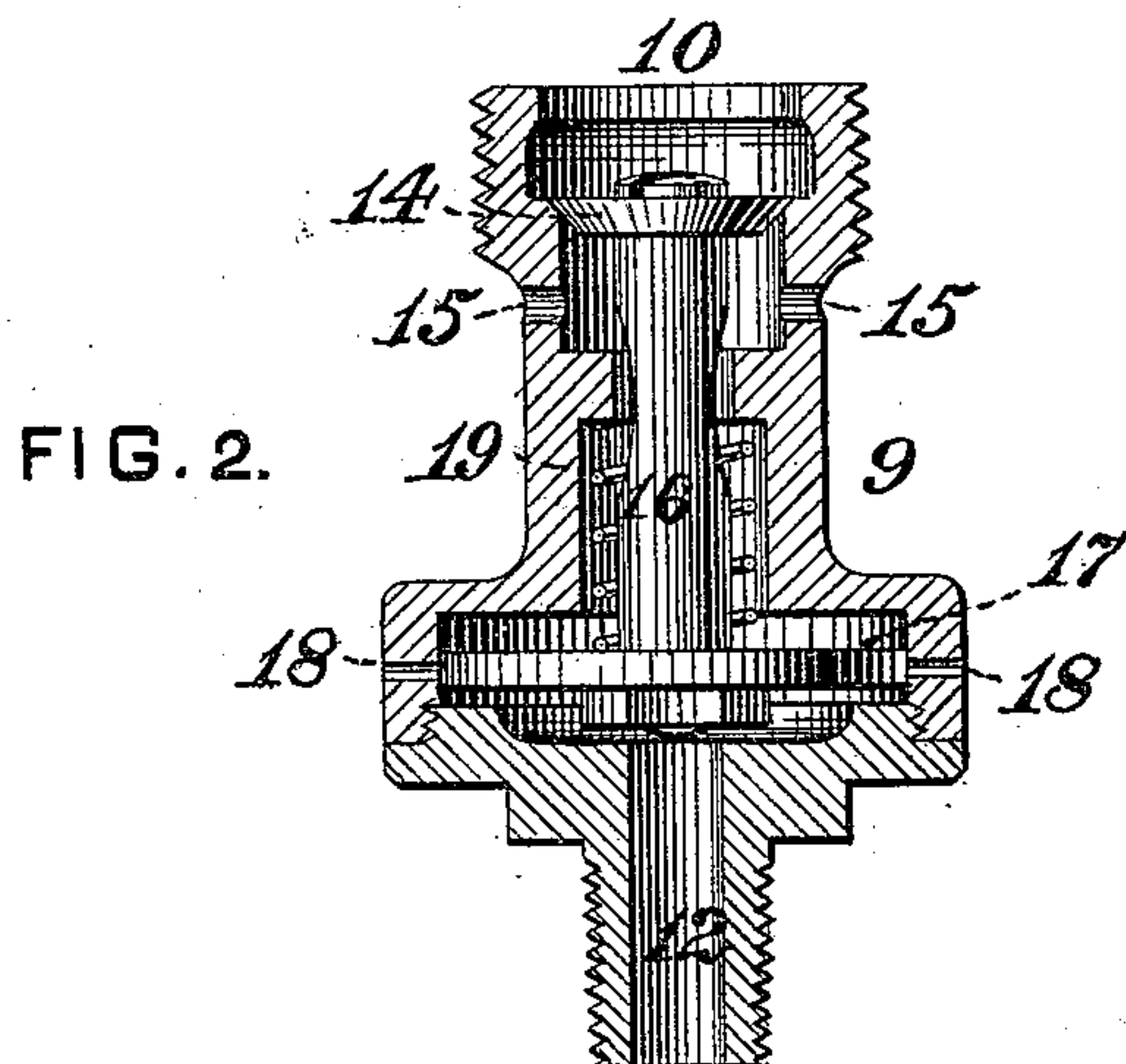
(No Model.)

P. GRABLER.

RELEASE VALVE FOR AUTOMATIC AIR BRAKES.

No. 433,895.

Patented Aug. 5, 1890.



WITNESSES:

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UNITED STATES PATENT OFFICE.

PETER GRABLER, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO THE
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RELEASE-VALVE FOR AUTOMATIC AIR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 433,895, dated August 5, 1890.

Application filed June 19, 1890. Serial No. 355,927. (No model.)

To all whom it may concern:

Be it known that I, PETER GRABLER, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Release-Valves for Automatic Air-Brakes, of which improvement the following is a specification.

The object of my invention is to provide a simple and efficient appliance whereby the prompt and complete discharge of air under pressure from a brake-cylinder may be facilitated, when required, for effecting the release of the brakes by affording an outlet therefor supplemental to that provided in the triple valve.

To this end my invention, generally stated, consists in the combination of a brake-cylinder, a triple valve, and a supplemental brake-cylinder release-valve actuated by pressure from the triple-valve exhaust-passage.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a plan view, partly in elevation and partly in section, of so much of the automatic brake mechanism of a railroad-car as illustrates the application of my invention; and Fig. 2, a longitudinal central section, on an enlarged scale, through the supplemental discharge-valve casing.

My invention is herein illustrated as applied in connection with a brake-cylinder 1, provided with a piston 2, the rod 3 of which is coupled by the usual connections to the levers through which the brake-shoes are applied to the wheels. The admission and exhaust of air under pressure to and from the brake-cylinder in applying and releasing the brakes are effected in the manner heretofore practiced and so well known in the art as not to require specific description by a triple valve 4, connected to the brake-cylinder head 5, and controlling communication, as heretofore, between a main air or brake pipe 6, connected with a main air-reservoir and an auxiliary reservoir connected by a pipe 7 with the triple valve between the auxiliary reservoir and the brake-cylinder and between

the brake-cylinder and the atmosphere. The admission and discharge of air to and from the supply side of the brake-cylinder piston 2 are effected through a port or passage 8 in the brake-cylinder head leading to the triple-valve casing, said port being by the movement of the slide-valve of the triple-valve mechanism placed in communication with the auxiliary-reservoir connection 7, or with the exhaust-passage of the triple valve, accordingly as the brakes are to be applied or released.

In the practice of my invention I provide, in connection with automatic brake apparatus of the general character of that above described, a supplemental valve-casing 9, having at one of its ends a brake-cylinder nozzle or passage 10, which is connected by a pipe 11 with the brake-cylinder on the supply or working side of its piston, and having at its opposite end a triple-valve connection nozzle or passage 12, which is connected with the exhaust-passage of the triple valve. A valve 14, fitted in the casing 9, adjacent to the brake-cylinder passage 10, controls communication between said passage and a discharge port or ports 15, leading from the casing 9 to the atmosphere. The valve 14 is connected by a stem 16 to a valve 17 of materially larger diameter, the valve 17, which acts as a piston for the application of unseating pressure to the valve 14, controlling communication between the triple-valve connection passage 12 and a discharge port or ports 18, leading from the casing 9 to the atmosphere and serving to release the air which has actuated the valve or piston 17. A light spring 19, bearing on the valve 17 and on a shoulder in the casing, holds the valves 14 and 17 normally seated in position to prevent the passage of air through the discharge-ports 15 and 18. The valves 14 and 17, while preferably connected, as shown, may, if preferred, be made separate, it being only essential that the valve or piston 17 shall be in position to transmit unseating pressure to the valve 14. It will be seen from the above construction that the admission of air to the brake-cylinder maintains the valves seated, while its exhaust therefrom opens both valves

by reason of the preponderance of pressure upon the larger area of the valve 17.

In operation the brakes are applied in the ordinary manner and the valves 14 and 17 remain closed, pressure being cut off from the larger valve 17 and closing pressure being exerted upon the smaller 14. Upon the opening of communication between the brake-cylinder and the atmosphere, through the passage 8 and the exhaust-passage of the triple valve, by the movement of the slide-valve of the latter effected by the increase of pressure in the train-pipe made by the engineer for the purpose of releasing the brakes a portion of the air thereby released from the brake-cylinder passes through the passage 12 to the valve 17, and by its preponderance of pressure thereon above that exerted on the smaller valve 14 raises both the valves and effects a discharge of air from the brake-cylinder through the ports 15 and 18, the discharge through the port 15 being supplemental to that which is effected, as heretofore, through the exhaust-port of the triple valve, thereby correspondingly increasing the quickness and freedom of release of the air from the brake-cylinder and effecting the prompt and complete release of the brakes.

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

1. In an automatic air-brake apparatus,

the combination of a brake-cylinder, a triple valve, and a supplemental release-valve controlling a passage from the brake-cylinder to the atmosphere and actuated by discharge-pressure from the exhaust-passage of the triple valve, substantially as set forth. 35

2. In an automatic air-brake apparatus, the combination of a brake-cylinder, a triple valve, a supplemental release-valve controlling a passage from the brake-cylinder to the atmosphere, and a valve or piston subject to pressure from the exhaust-passage of the triple valve and adapted to unseat the release-valve upon the application of such pressure, substantially as set forth. 45

3. In an automatic air-brake apparatus, the combination of a brake-cylinder, a triple valve, a valve-casing connected at opposite ends to the brake-cylinder and to the exhaust-passage of the triple valve, and two connected valves of relatively different areas working in said casing and controlling, respectively, an independent brake-cylinder discharge-port and a triple-valve discharge-port, substantially as set forth. 55

In testimony whereof I have hereunto set my hand.

PETER GRABLER.

Witnesses:

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