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Patented Aug. 5, 1902.

A. L. TIBBITS.  
AIR BRAKE ATTACHMENT.

(Application filed Nov. 15, 1901.)

(No Model.)

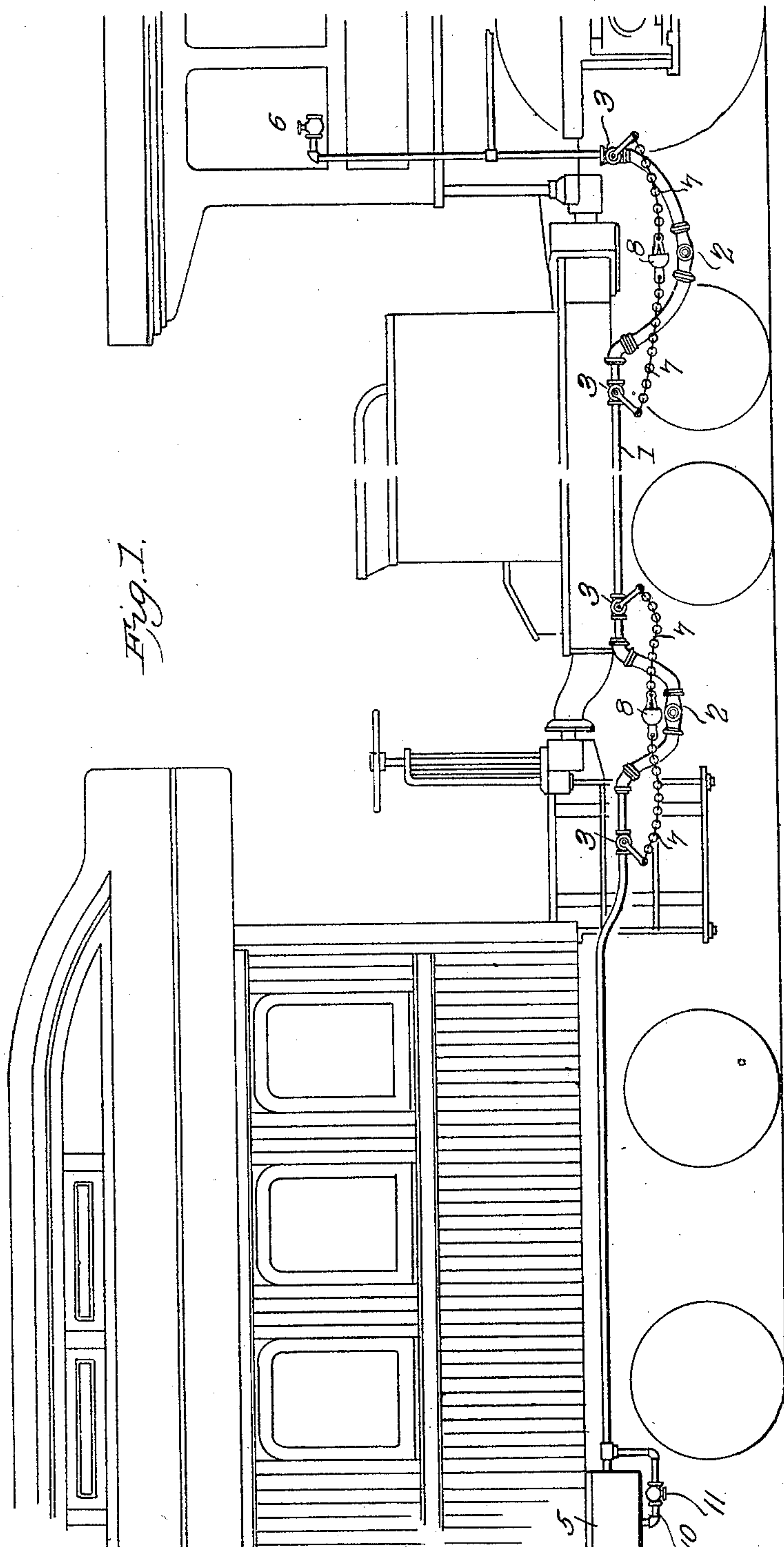


Fig. 1.

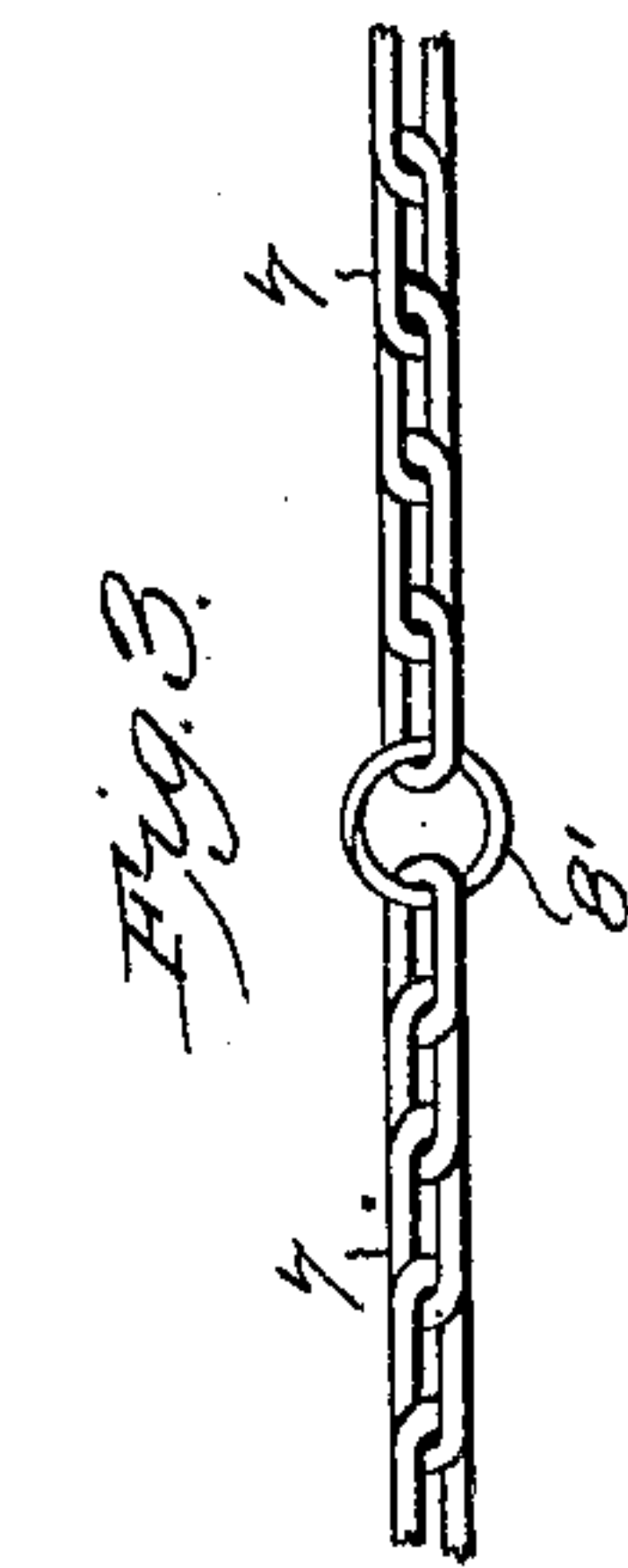


Fig. 3.

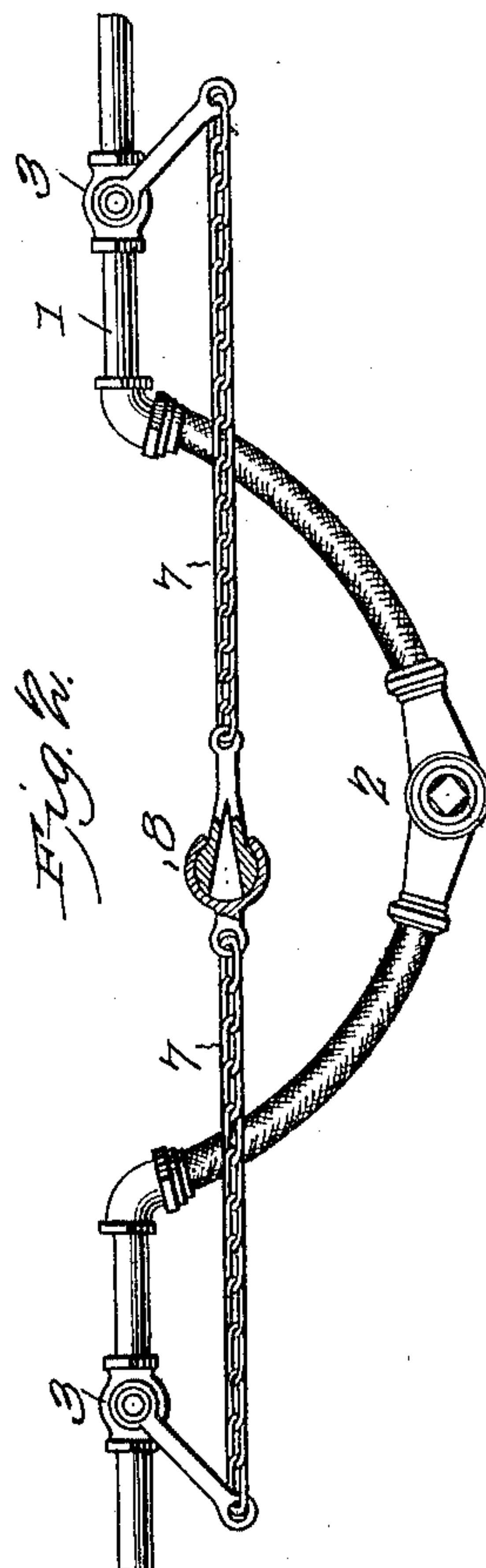


Fig. 2.

Witnesses

*E. J. Stewart*  
*John C. Barron*

by

A. L. Tibbits, Inventor.

*Chas. Snow & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

ARTHUR LADUE TIBBITS, OF CHICAGO, ILLINOIS.

## AIR-BRAKE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 706,363, dated August 5, 1902.

Application filed November 15, 1901. Serial No. 82,432. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR LADUE TIBBITS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Air-Brake Attachment, of which the following is a specification.

My invention relates to certain improvements in automatic air-brakes, and is in the nature of an addition or attachment to the brakes in ordinary use, the principal object of the invention being to provide means under the direct control of the engineer for effecting the instant release of the brakes, as more fully described hereinafter.

A further object of the invention is to provide for the control of the brakes on the forward section of a broken train to enable the engineer to release the brakes on the forward section, so that the latter may be drawn away by the engine in order to avoid collision with the rear section of the train on a downgrade or in the event of the failure of the brakes of the rear section.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is an elevation of a portion of a train, illustrating the invention, all portions of the usual air-brake apparatus with the exception of the auxiliary reservoir being omitted for the sake of clearness. Fig. 2 is a similar view, on an enlarged scale, illustrating the coupling-sections of the auxiliary exhaust or bleeder which I employ and illustrating also the means employed for closing the angle-cocks used on such bleeders when the train parts. Fig. 3 is a detached perspective view of a modified form of connection between the angle-cocks of coupled cars.

In carrying out my invention I employ all portions of the ordinary form of automatic air-brake apparatus, including the pump and main reservoir, the engineer's valve, the train-pipe, the auxiliary reservoir, brake-cylinder, triple valve, and all connected and coöperating parts.

From the cab of the engine runs a bleeder

or exhaust pipe extending throughout the entire length of the pipe, as indicated at 1, and the various pipe-sections carried by the locomotive-tender and cars are coupled together in a continuous line by the flexible couplings 2, which may be of the usual type. At the end of each car the pipe-section carried thereby is provided with an angle-cock 3, normally in open position. This pipe is connected to each of the auxiliary reservoirs 5 of the usual braking system, and the front end of the pipe in the cab is provided with a controlling-valve 6 within convenient reach of the engineer. The valve 6 is normally closed, and the angle-cock at the end of the train is also closed, the pipe being normally filled with air at the same pressure as that in the auxiliary cylinders.

The angle-cocks 3 at the adjacent ends of coupled cars are connected by chains 7 7, a section of chain being secured to the handle of each cock and the ends of the chain-sections being connected by a coupling 8, which separates when the train parts. The coupling is so constructed that in the event of the parting of the train the chain will be stretched taut, as shown in Fig. 2, and before separating will move the angle-cocks to the closed position, the arrangement being such that this operation will occur in advance of the separation of the coupling-sections 2 of the bleeder-pipe, and thus prevent the escape of air from the auxiliary reservoirs, with which said pipe is connected. As a modification of this coupling a split link, as 8', may be employed, the link being much lighter than the remaining portions of the chain-sections, so that it will break after moving the valves or cocks to the closed position.

In the operation of the device under ordinary conditions the engineer by opening the valve 6 can draw the air out of all of the auxiliary reservoirs and quickly release any and all brakes that may be "stuck," thus avoiding the delay incident to the separate bleeding of each of the reservoirs and unnecessary loss of time. The device is particularly useful in the event of the parting of the train on a downgrade or in cases where the brakes of the detached section refuse to work or in cases where all of the cars are not provided with air-brakes. When the train parts, the angle-



cocks on the auxiliary pipes are closed, preventing the escape of air from the auxiliary reservoirs on both sections of the train. The separation of the couplings of the train-pipe will then result, as usual, in the movement of the triple valve to open communication between the auxiliary reservoir and the brake-cylinder to apply the brakes on both sections of the parted train. To effect the quick release of the brakes on the forward section of the train, to which the engine is attached, the engineer opens the valve 6, permitting the escape of the air from the auxiliary reservoirs, permitting the triple valves to move to such position as to open communication between the brake-cylinders and the exhaust. The engineer may then run ahead with the forward section of the train and avoid all danger of a rear-end collision.

The pipe 1 is connected to each of the auxiliary reservoirs by a small branch pipe 10, having a valve 11, so that any particular reservoir may be cut out in the event of the brakes being out of order.

While the apparatus herein described and illustrated in the accompanying drawings is the preferred form of the apparatus, it is obvious that many changes may be made in the particular form of coupling between the adjacent angle-cocks and in the general arrangement of the apparatus without departing from the spirit or sacrificing any of the advantages of my invention.

Having thus described my invention, what I claim is—

1. The combination with an automatic air-brake system having the usual auxiliary reservoirs, brake-cylinders, engineer's brake-valve and train-pipe, of an auxiliary pipe independent of the automatic brake system, said auxiliary pipe extending throughout the length

of the train and to the cab of the engine, said pipe being connected directly to the auxiliary reservoirs and forming a bleeder, a valve arranged in the cab independent of the engineer's brake-valve and controlling the flow of air from the auxiliary reservoirs, normally open valves arranged on said auxiliary pipe at points adjacent to the ends of the cars, and means for automatically closing said valves on the parting of the train, substantially as specified.

2. In an air-brake system having as one of its elements, an auxiliary reservoir on each car, an auxiliary pipe connected to each of the reservoirs and having coupled sections between the cars, cocks arranged on said pipe at the ends of the car, a separable coupling member for connecting adjacent cocks and adapted to operate the same upon the parting of a train, and a controlling-valve on said pipe.

3. In an air-brake system having as one of its elements an auxiliary reservoir on each car, an auxiliary pipe connected to each of the reservoirs by a valved branch pipe, cocks arranged on said pipe at each end of the cars, flexible couplings arranged on the pipe between the cars and a separable coupling member connecting said valves, said member being adapted to be uncoupled in advance of the uncoupling of the pipe members, and a controlling-valve on said pipe, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ARTHUR LADUE TIBBITS.

Witnesses:

FRANK J. ARNEY,  
S. B. WRINGER.