

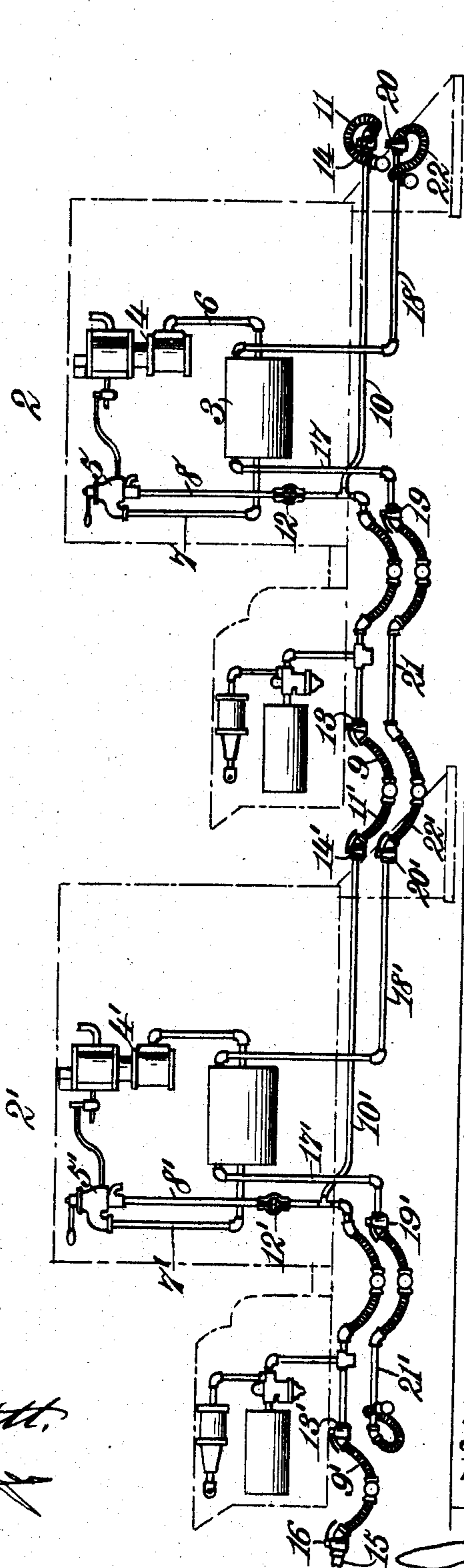
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W. T. ROBINSON, J. W. NEIGHBOURS & W. O. PIERCE.

AIR BRAKE APPARATUS.

APPLICATION FILED JUNE 10, 1907.



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# UNITED STATES PATENT OFFICE.

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## AIR-BRAKE APPARATUS.

No. 865,210.

Specification of Letters Patent.

Patented Sept. 3, 1907.

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*To all whom it may concern:*

Be it known that we, WILLIAM T. ROBINSON, JAMES W. NEIGHBOURS, and WILBOURN O. PIERCE, citizens of the United States, residing at Pulaski, in the county of Pulaski and State of Virginia, have invented new and useful Improvements in Air-Brake Apparatus, of which the following is a specification.

This invention relates to air brake apparatus.

Apparatus involving our invention may be used either on steam, electric, or other railroads. When used in connection with steam railroads the various working parts will be carried on the locomotives, while when used in conjunction with electric railroads, the same may be carried by the motor cars. For simplicity we will use the word "locomotive" to include a machine thus commonly known as well as motor cars and equivalent devices. It is sometimes the custom to employ two or more locomotives for hauling a train and the air brake equipments thereof are operatively connected. Heretofore when these equipments were connected some confusion and accidents have occurred owing to the fact that the apparatus is usually controlled by several engineers. We provide a simple and effective arrangement whereby two or more locomotives may be coupled at the head of a train and whereby the system can be controlled from the front or pilot locomotive. Our organization is such that all the main reservoirs can be employed in the operation of the brakes.

In the drawing accompanying and forming a part of our specification we have shown in diagram one advantageous form of embodiment of the invention which, to enable those skilled in the art to practice the same, will be set forth at length in the following description, while the novelty of the invention will be included in the claims succeeding said description.

Referring to said drawing, there are shown two locomotives although they are represented simply in dotted outline and not wholly. The front locomotive is denoted by 2 and the rear one by 2'. The two locomotives are supposed to be mechanically coupled together, although the mechanism for securing this result is not illustrated, and the rear locomotive 2' is assumed to be coupled to a train.

We will describe in a general way the different parts on the locomotive 2, the corresponding parts on the locomotive 2' being indicated by like reference characters with prime marks.

Referring to said locomotive 2, the main reservoir is denoted by 3, the air pump by 4, and the engineer's valve by 5. These parts are usually mounted on the engine. From the pump 4 to the main reservoir 3 a pipe as 6 leads, and from said reservoir 3 to the engineer's brake valve a pipe as 7 extends. The brake or

train pipe 8 leads from said engineer's or brake valve 5 and is connected in the customary manner with the equipment on the tender of the locomotive, which, as it forms no specific part of the present invention, need not be described in detail. The parts just alluded to may be and preferably are of the ordinary character and mounting. There will, of course, be a flexible tube as 9 at the outer terminal end of the train or brake pipe 8.

From the train pipe 8 which might be considered a main train pipe, there is shown as extending in a forward direction an auxiliary train or brake pipe 10, and this is illustrated as terminating at its forward end in a flexible tube as 11. When the two locomotives are connected together the forward flexible tubular portion 11' of the auxiliary pipe 10' is coupled in the customary manner with the rear flexible portion 9 of the main train pipe 8. In the pipe 8, preferably in the vicinity of the cab, is a valve as 12 and this valve may be operated or closed to cut out the engineer's or brake valve 5. In the drawing the valve 12 is supposed to be opened while the valve 12' is closed, so that the valve 5' is cut out or thrown out of action as a brake-controlling factor, while the valve 5 is supposed to be in action and is employed by the pilot engineer for controlling the braking mechanism.

At a suitable point in the main brake pipe 8 is an angle-cock as 13, while at or near the forward end of the auxiliary pipe 10 is a similar angle-cock 14. When the two locomotives are coupled together the angle-cock 14 will be closed, while the angle-cocks 13, 14', and 13' will be opened. The flexible tube 9' will be coupled with the train pipe 15 at the head end of which is an angle-cock 16 which at such time is opened. The construction and mode of operation of these angle-cocks is so well known that it is needless to describe the same.

We have shown as extending rearward from the main reservoir 3 a pipe as 17, and as extending forward therefrom a pipe as 18, the pipe 17 being equipped with an angle-cock as 19, while the pipe 18 is furnished with a similar angle-cock 20. From the rear end of the pipe 17 there is shown as extending a coupling tube as 21 and from the forward end of the pipe 18 there is shown as connected a flexible tube 22. When the two locomotives are coupled together as set forth the coupling tube 21 will be connected with the tube 22', while the tube 21' will be closed by a dummy; the angle-cock 20 will be closed and the angle-cocks 19 and 20' will be opened. This will put the two main reservoirs 3 and 3' in direct communication, so that the brake system can be operated from the forward valve 5. Owing to the fact that both main reservoirs 3 and 3' are in communication the pump 4' can be operated to charge the



reservoir 3' with compressed air, notwithstanding the fact that the valve 5' is out of action. The valve 5' is thrown out of action, as will be understood, by the manipulation of the valve 12'. Owing to the described connections either of the locomotives 2 or 2' can be in front, it being assumed, however, that the locomotive 2 is forward of the locomotive 2'. Their equipments in the present instance are duplicated.

What we claim is:

- 10 1. The combination of a main reservoir, an air pump for supplying air to said reservoir, a brake valve in communication with said reservoir, a train pipe leading from the said brake valve, and pipes extending from the main reservoir for the conduct of air therefrom in opposite directions.
- 15 2. The combination of a main reservoir, an air pump for supplying air to said reservoir, a brake valve in communication with said reservoir, a valved train pipe leading from said brake valve, and pipes extending from the main reservoir for the conduct of air therefrom in different directions, each of said last mentioned pipes having a cock.
- 20 3. The combination of a main reservoir, an air pump for supplying air to said reservoir, a brake valve in communication with said reservoir, a train pipe leading from said brake valve, an auxiliary train pipe connected with said other train pipe, and pipes extending from the main
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reservoir for the independent conduct of bodies of air therefrom.

4. The combination of a main reservoir, an air pump for supplying air to said main reservoir, a brake valve in communication with said reservoir, a main train pipe leading from said brake valve, an auxiliary train pipe communicating with and leading from the main train pipe, the main and auxiliary train pipes having cocks, a valve in the main train pipe between the auxiliary train pipe and the brake valve, and pipes extending from the main reservoir for the conduct of air therefrom in different directions, each of said last mentioned pipes having a cock.

5. The combination of a main reservoir, an air pump, a pipe for conducting air from the air pump to said reservoir, a brake valve, a second pipe extending from the main reservoir to the brake valve, a valved train pipe leading from said brake valve, and other pipes extending from the main reservoir for the conduct of air therefrom in opposite directions, each of said last mentioned pipes having an angle-cock.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WILLIAM T. ROBINSON.  
JAMES W. NEIGHBOURS.  
WILBOURN O. PIERCE.

Witnesses:

J. E. CARPER,  
A. H. JORDAN.