

No. 712,915.

Patented Nov. 4, 1902.

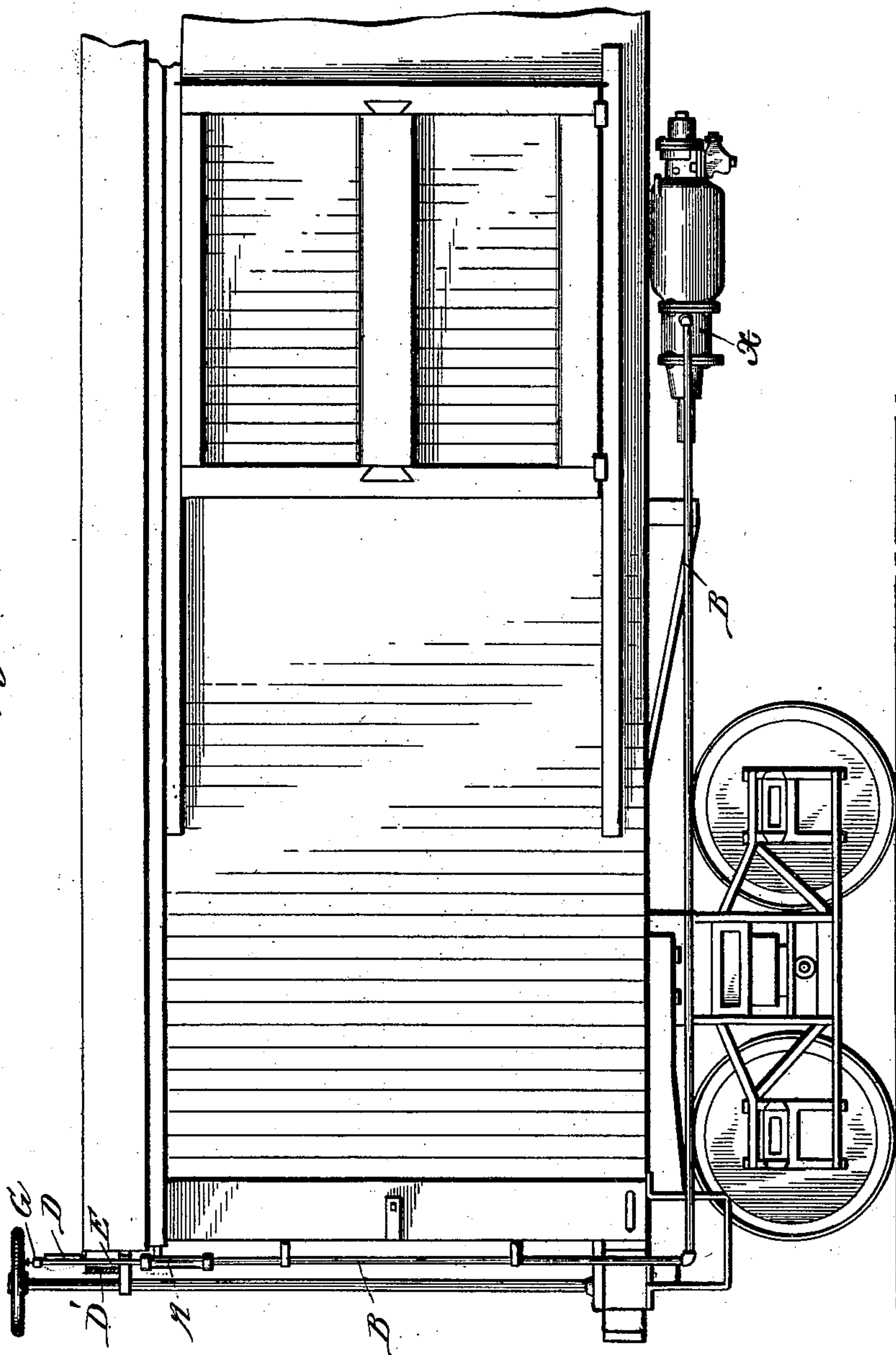
F. H. DUKESMITH.
AIR BRAKE SIGNALING AND RELEASING DEVICE.

(Application filed June 6, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



WITNESSES:

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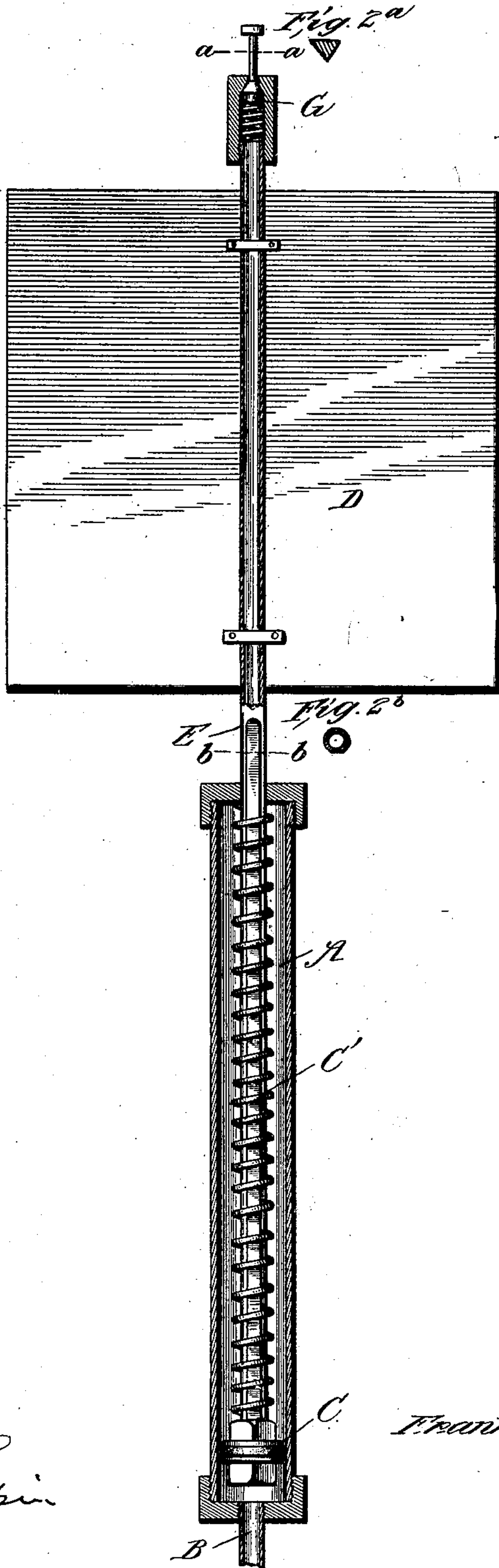
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2 Sheets—Sheet 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK H. DUKESMITH, OF CHARLESTOWN, WEST VIRGINIA, ASSIGNOR OF
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AIR-BRAKE SIGNALING AND RELEASING DEVICE.

SPECIFICATION forming part of Letters Patent No. 712,915, dated November 4, 1902.

Application filed June 6, 1902. Serial No. 110,490. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. DUKESMITH, a citizen of the United States, residing at Charlestown, in the county of Jefferson and State of West Virginia, have made certain new and useful Improvements in Air-Brake Signaling and Releasing Devices, of which the following is a specification.

My invention is an improvement in air-brake signaling and releasing devices, and has for an object, among others, to provide a simple construction whereby to signal to the train-crew whenever the brake is set from any cause whatever and also to enable the crew to release the brakes while the train is moving; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side view of a portion of the car provided with my invention, and Fig. 2 is a sectional elevation of the signal devices. This view Fig. 2 also includes two detail cross-sections, Fig. 2^a and Fig. 2^b on the lines *a a* and *b b* of Fig. 2 illustrating the cross-sectional form of the valve-stem to permit the proper guiding and venting alongside said stem and the tubular construction of the piston-rod for the purposes more fully described hereinafter.

The purpose of my invention is to signal to the train-crew that the brake is set, let it be from any cause whatever—as, for instance, in ascending grades if the train-pipe leaks the brake would be caused to apply, and as a result the train would be stalled or pulled apart. By means of my present invention the train-crew is notified that the brakes are sticking and being so notified are able to release the brake while the train is in motion by means of the release-valve, presently described. Again, should the train-pipe leak and cause the brakes to apply on descending a grade and any defect in the triple valve—such, for instance, as a leaking piston-packing ring or a sticking triple—prevent the engineer from releasing the brake in the usual manner the rapid movement of the wheels pressing against the brake-shoes would cause the wheels to become overheated, and as a consequence the wheels would either slide or burst and probably wreck the train. By the present invention the train-crew will be noti-

fied at once that the brakes are sticking and can release the brakes while the train is moving by means of the release-valve, which will presently be described in detail.

When the brakes are set, as is well known, there is always pressure in the brake-cylinder, such pressure operating to set the brakes. By my invention I provide a signal operated by the pressure in the brake-cylinder to one position and arrange to readjust to another position when such pressure is released from the brake-cylinder and also provide means for releasing the pressure from the brake-cylinder, so the brakes can release and the signal can readjust.

In the construction shown I employ a cylinder A, connected at one end by a pipe B with the brake-cylinder X to receive pressure therefrom, a piston C operating in the cylinder A and arranged to be moved by the pressure in the brake-cylinder, and a signal D, which is operated by the piston C. As shown and preferred, the piston C is normally at the lower end of the cylinder A and is held in such position by a spring C', operating between the piston C and the upper end of the cylinder A. The signal D is carried on the piston-rod E of the piston C, and when the brake-cylinder is charged with pressure to set the brake such pressure will pass through the pipe B, force the piston C from the position at the lower end of the cylinder A toward the opposite end of the cylinder, and thus throw the signal or flag D into view and notify the train-crew that the brake is set, and the signal will remain in this position until the pressure in the brake-cylinder is released. I also provide means for releasing the pressure in the brake-cylinder in order to release the brake. I prefer to connect the releasing devices with the signal devices and to employ the construction as shown, which consists in making the piston-rod E, which carries the signal D in the form of a tube, opening at its lower end through the piston C and provided at its upper end with a releasing-valve G, which is spring and air pressed to closed position and may be depressed by hand to release the pressure below the piston C and to permit the escape of the pressure in the brake-cylinder through the pipe B and thence out through the tubular piston-rod E and valve G as desired.

It is preferred to arrange the flag D along the end of the car, so it will normally be depressed in a pocket D' below the top of the car and when operated by the pressure in the brake-cylinder will be forced up above the car immediately below the hand-wheel ordinarily employed on freight-cars and as shown in the drawings. This puts the signals in the position where they can be readily seen by the train crew and by the engineer. If at any time the train crew is notified by the signals that the brakes are set when not desired, the brakeman or other train hand can in a moment operate the valve G to release the pressure in the brake-cylinder, and thus release the brake and permit the signal D to readjust to normal position. It will be noticed this can be done while the train is in motion and will avoid the accidents and injuries resulting from the setting of the brakes when not desired. The invention is also useful in testing trains in yards at terminals, or elsewhere, as the engineer can determine at a glance by the signals whether any or all of the brake devices are defective, and if so which one, as the signals D on the several cars will indicate at a glance whether the brakes of the respective cars are set and if they properly release by the correct action of the triples.

The device will also indicate whether the piston has the proper travel or whether the auxiliaries are properly charged by the action of the pressure on the piston of the signal-cylinder, the tension of the spring C' being regulated to permit the movement of the flag to a certain point under proper pressure, and any variation above or below such point will indicate too little or too great pressure up to a certain degree.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An air-brake signaling and releasing device comprising a cylinder arranged at one end for connection with the brake-cylinder, a piston operating in said cylinder and arranged to be actuated by the pressure from the brake-cylinder, a spring for readjusting the said piston to normal position, a hollow piston-rod extending from said piston and arranged to receive pressure from the brake-cylinder, a valve in the piston-rod, and a signal carried thereby substantially as set forth.

2. The combination of the brake-cylinder, a cylinder connected therewith and receiving pressure therefrom, a piston in said second cylinder and arranged for operation in one direction by brake-cylinder pressure, a spring for operating the piston in the other direction, a hollow piston-rod extending from said piston, a valve controlling the piston-rod, and a signal carried by the piston-rod substantially as set forth.

3. The combination of the brake-cylinder, a signal arranged for operation by the brake-cylinder pressure and means for operation by

the train-crew whereby to release the brake-cylinder pressure through the signal substantially as set forth.

4. The combination with the brake-cylinder, of a signal including a cylinder and means therein arranged for operation by brake-cylinder pressure when the brakes are set, and devices in connection with the signal for releasing brake-cylinder pressure whereby to permit the release of the brake and the readjustment of the signal substantially as set forth.

5. The combination of the brake-cylinder, a signal-cylinder connected with the brake-cylinder, a piston operating in the signal-cylinder, a signal arranged for operation by said piston, and means for releasing the pressure in the brake-cylinder through the signal-cylinder substantially as set forth.

6. An air-brake signaling and releasing device comprising the cylinder arranged for connection with the brake-cylinder, the piston operating therein and arranged to operate the signal, the signal, and a release-valve for releasing the pressure in the signal-cylinder substantially as set forth.

7. A signal for operation by the brake-cylinder pressure and having a piston, a hollow piston-rod, a release-valve controlling said rod and a signal on the rod substantially as set forth.

8. The combination of the signal-cylinder for connection with the brake-cylinder, means for venting the signal-cylinder and thereby relieving pressure in the brake-cylinder, the piston operating in the signal-cylinder, the piston-rod provided with a signal, and a spring for readjusting the piston substantially as set forth.

9. The signal-cylinder arranged for connection with the brake-cylinder, combined with the piston operating in the signal-cylinder, and the piston-rod connected at one end with the piston and provided at its other end with a release-valve substantially as set forth.

10. The combination of the brake-cylinder, the signal-cylinder, a pipe connecting the brake-cylinder with the signal-cylinder, a piston operating in the signal-cylinder and a tube connected with the piston and communicating at its inner end with the signal-cylinder and bearing the signal and the release-valve controlling said tube substantially as set forth.

11. The combination with the brake-cylinder, the signal-cylinder connected therewith and receiving pressure therefrom, a piston in the signal-cylinder and arranged for operation in one direction by brake-cylinder pressure, a hollow piston-rod extending from said piston, a valve controlling the piston-rod and a signal carried by the piston-rod substantially as set forth.

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Witnesses:

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