(No Model.)

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AIR BRAKE.

No. 415,517. Patented Nov. 19, 1889.

Fig. I.

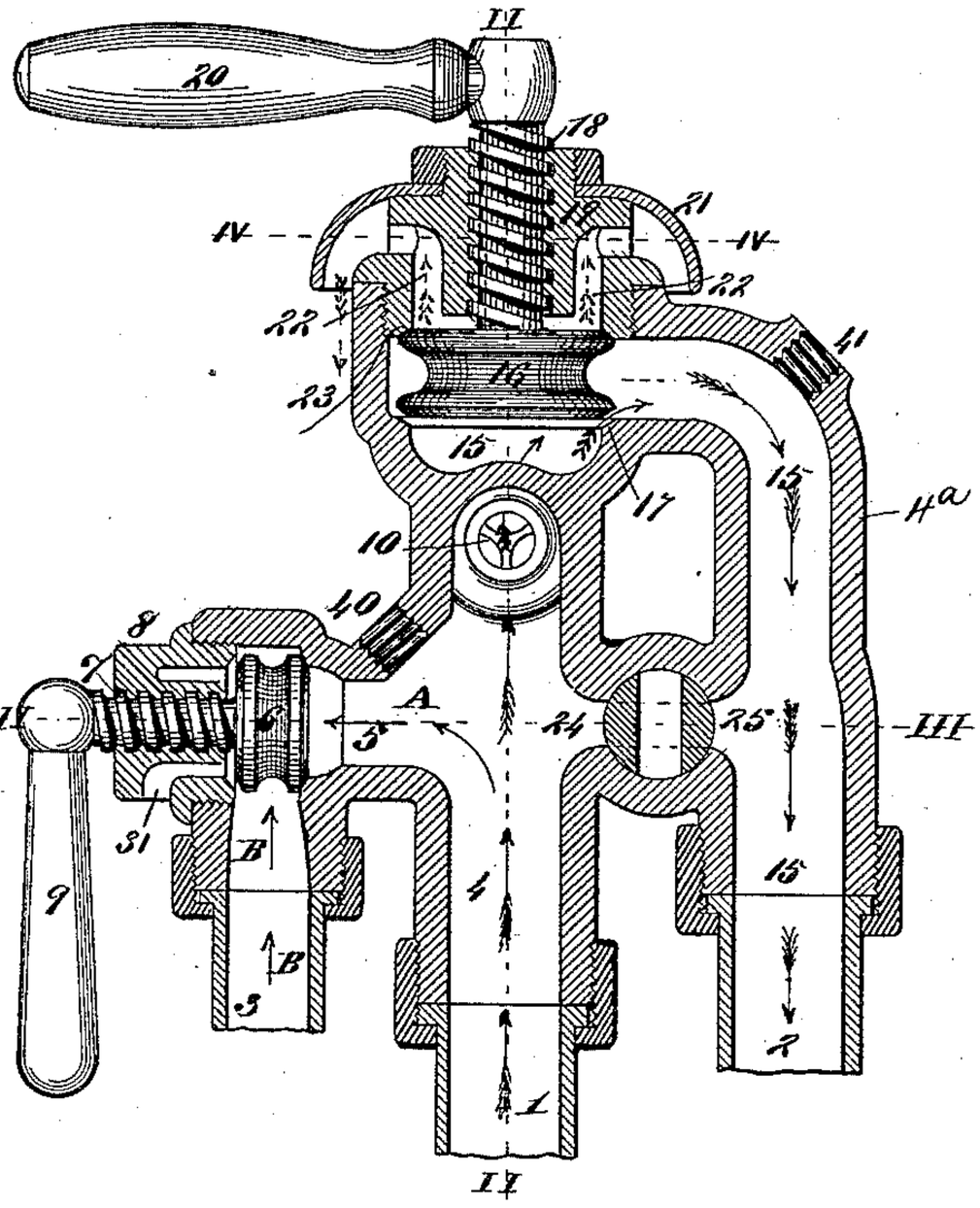


Fig. II.

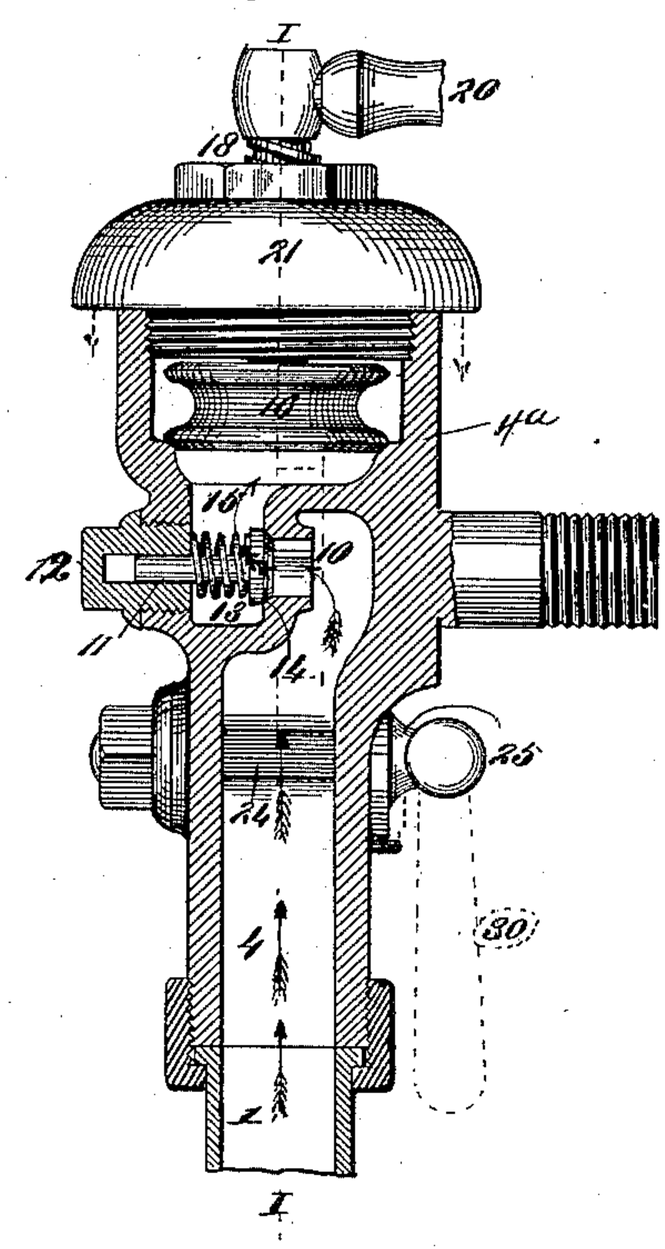


Fig. 3.

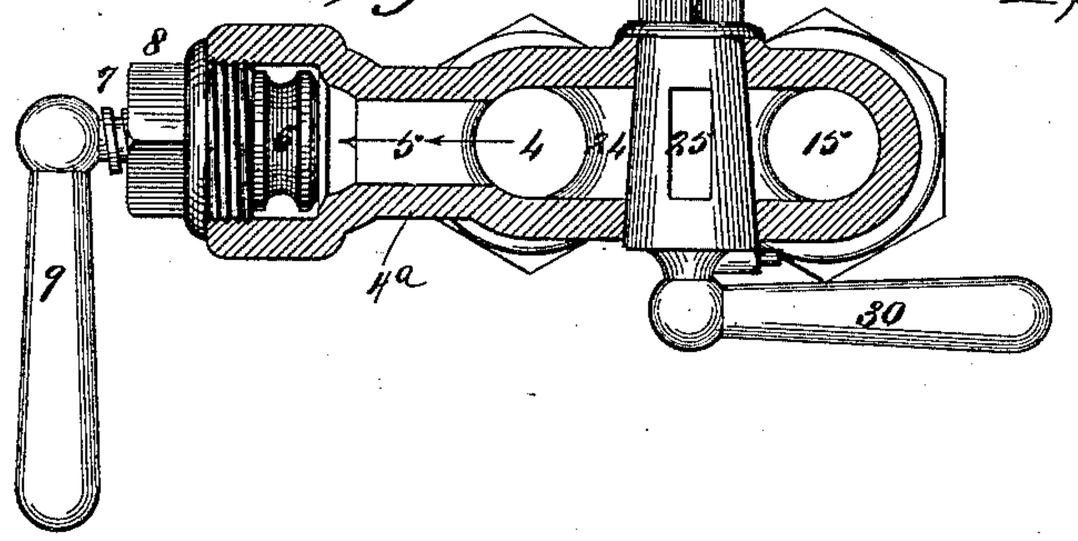
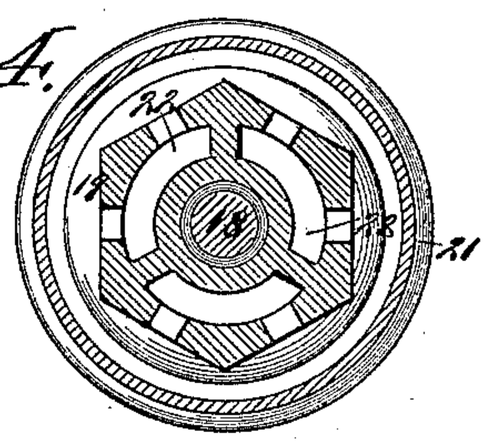


Fig. 4.



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AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 415,517, dated November 19, 1889.

Application filed March 1, 1889. Serial No. 301,626. (No model.)

To all whom it may concern:

Be it known that I, FRANK LANSBERG, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Air-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a vertical section illustrative of my improvement, taken on line II, Fig. II. Fig. II is a similar view taken on line II II, Fig. I. Fig. III is a transverse section taken on line III III, Fig. I, and Fig. IV is a transverse section taken on line IV IV, Fig. I.

My invention relates to certain improvements in air-brakes for locomotives and railway-cars; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, 1 represents the pipe from the main reservoir. 2 represents the train-pipe, and 3 the pipe leading to the engine-brake.

In the shell 4^a is formed a port 4, communicating with the pipe 1, and from which extends a branch 5, leading to the pipe 3. In the branch 5 is located a valve 6, having a threaded stem 7, fitting in a cap 8, and provided with a handle 9, by which the valve is opened and closed. In the upper part of the port 4 is a reducing-valve 10, having a stem 11, fitting in a cap 12, and around which is placed a spring 13, the tendency of which is to hold the valve closed against its seat 14. (See Fig. II.) Beyond the valve 10 is a port 15, controlled by a puppet-valve 16, having a seat 17. The valve 16 has a threaded stem 18, which passes up through a cap 19, and which is provided with an operating-handle 20. The cap 19 may be provided with a cup-shaped deflector 21, and it is further provided with exhaust-ports 22. In addition to the seat 17, the valve 16 has a seat 23 for controlling the ports 22. The port 15 extends beyond the valve, as shown in Fig. I, and, passing in a downwardly direction, communicates with the pipe 2.

24 represents a short port forming a communication between the ports 4 and 15. In this port 24 a valve 25 is located.

The operation is as follows: The air passes through the pipe 1 from the main reservoir, as shown by the arrows in Figs. I and II, and out through the valve 10, which it opens, owing to the excess of pressure it has over the spring 13. The valve 16 being open, the air passes on through the port 15 and into the pipe 2. As soon as the air in the pipe 2 has reached a certain pressure the valve 10 will be automatically closed by the spring 13. By means of this reducing-valve 10 the pressure in the pipe 2 may be reduced under the pressure in the pipe 1 to the desired amount. When it is desired to exhaust the air from the pipe 2, it is done by moving the valve 16 from the position shown in Fig. I to the position shown in Fig. II, which opens the exhaust-ports 22 and closes the port 15. When a heavy pressure to release the brakes is desired in the train-pipe 2, it can be obtained by opening the valve 25, which is provided with a suitable handle 30. (See Fig. III.) This gives a direct communication between the pipes 1 and 2, as stated.

For the purpose of applying the engine-brake, the valve 6 is opened, or moved from the position shown in Fig. I to the position shown in Fig. III, which permits of the passage of air in the direction shown by the featherless arrows A in Fig. I. Then to exhaust the air from the pipe 3 the valve 6 is moved from the position shown in Fig. III to the position shown in Fig. I, when the air will escape through a port 31 in the cap 8, as shown by the featherless arrows B in Fig. I.

By means of the described construction a cheap and effectual device is provided by which the brakes can be effectually handled.

40 represents a perforation connecting with the port 4, and into which may be inserted the stem of a gage for indicating the pressure in the port 4, and 41 represents a similar perforation communicating with the port 15, and into which may be inserted the stem of a gage to indicate the pressure in the port 15.

An apparatus similar to this is also shown and described in my application, Serial No. 301,625, of even date herewith.

I claim as my invention—

1. The combination of a pipe leading from

the main reservoir, a train-pipe, ports 4 and 15, forming communication between said pipes, a reducing-valve between said ports 4 and 15, and a short port provided with a valve and forming communication between the first-mentioned ports, substantially as and for the purpose set forth.

2. The combination of the pipe leading from the main reservoir, a train-pipe, ports 4 and 15, forming communication between said pipes, valves located in said ports 4 and 15, a pipe leading to the engine-brake, a port forming communication between the port of the engine-cylinder pipe and a pipe leading to the engine-brake, a valve located in said last-mentioned port, and a cap through which the stem of said valve passes, and which is provided with an exhaust-port, substantially as and for the purpose set forth.

3. The combination, with the shell having a port from the main reservoir, a port from the train-pipe, and ports connecting the aforesaid ports, of a check-valve closing communication between the train-pipe and main reservoir, a double-faced puppet-valve arranged between said check-valve and train-pipe, the cap 19, having exhaust-ports communicating with the train-pipe, and a screw-threaded stem projecting through said cap and being secured to said puppet-valve, whereby the latter may be raised to close said exhaust-ports, or lowered to close the port from the main reservoir, substantially as set forth.

4. The combination, with the shell having the ports therein, of a cap screwing into said shell and having exhaust-ports communicating with the ports in said shell, and a deflector secured on said cap over said exhaust-ports, substantially as set forth.

5. The combination, with the shell having the port for the train-pipe, the port for the brake-pipe, and the port from the main reservoir in communication with all of said ports, of a check-valve in one of said ports closing communication between the train-pipe and main reservoir, the cap 19, screwed into said shell and having a valve-seat at its inner end, and exhaust-ports in communication with the train-pipe, the valve-seat 17 in the said train-pipe port between said check-valve and train-pipe, the double-faced puppet-valve 16, arranged above the seat 17 and below the cap 19, a screw-stem projecting from said valve 16 through the cap 19, and the cap 8, having exhaust-port 31 communicating with the said brake-pipe port and the double-faced valve 6, adapted to close said port 31 and open communication between the main reservoir and brake-pipe, and to close said communication and open communication with the brake-pipe and port 31 alternately, substantially as set forth.

FRANK LANSBERG.

In presence of—
EDW. S. KNIGHT,
THOMAS KNIGHT.