

(No Model.)

F. LANSBERG.
AIR BRAKE.

No. 415,516.

Patented Nov. 19, 1889.

Fig. I.

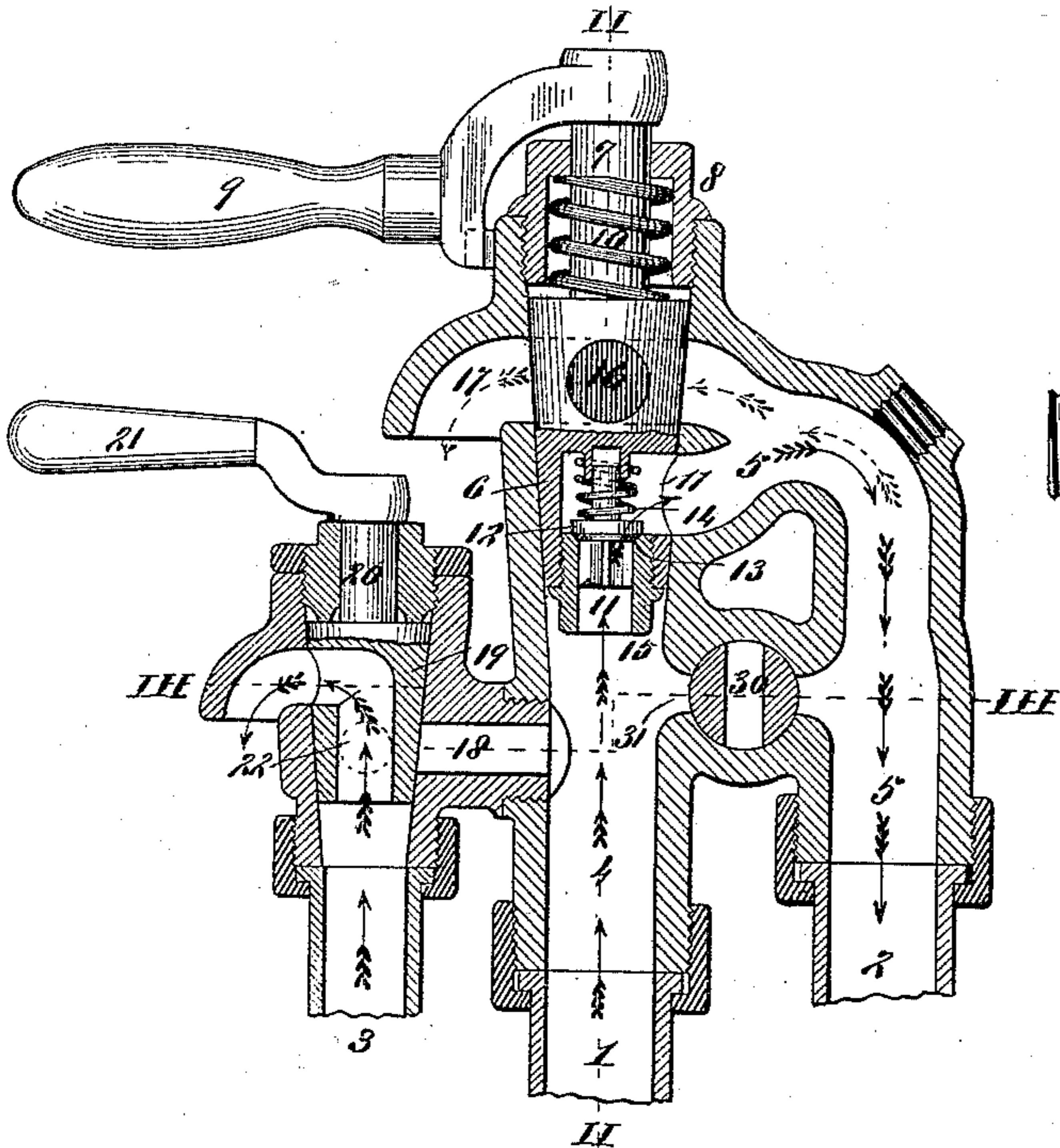


Fig. II.

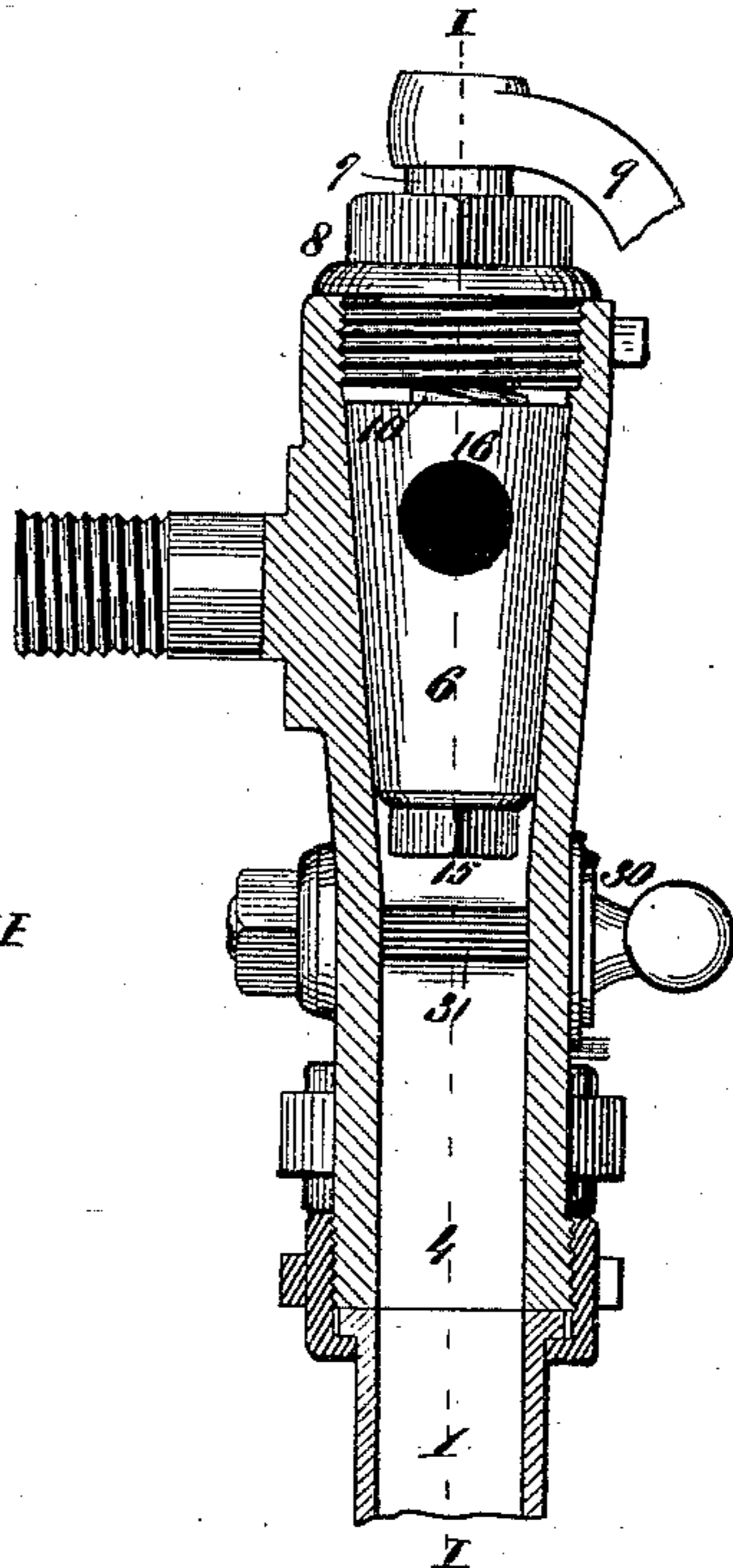


Fig. III.

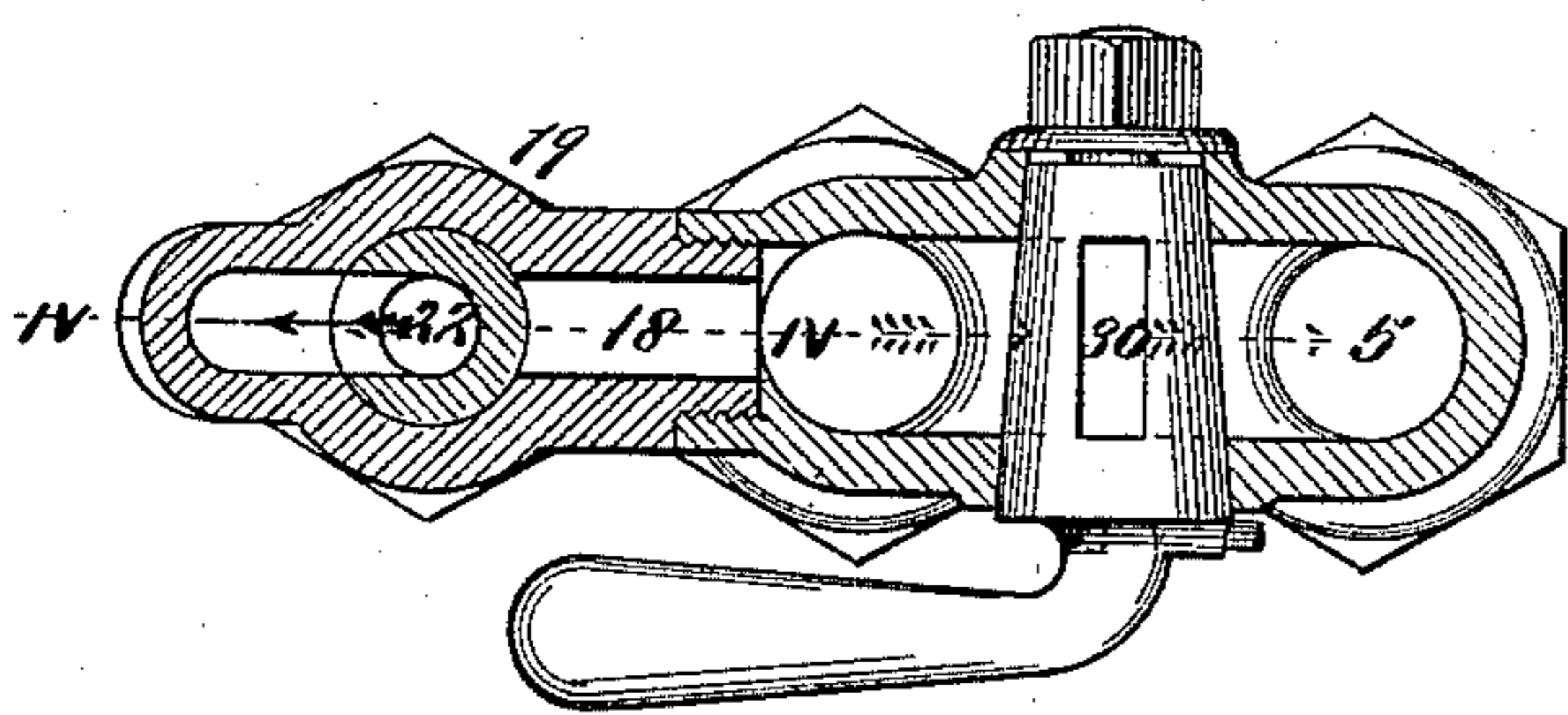
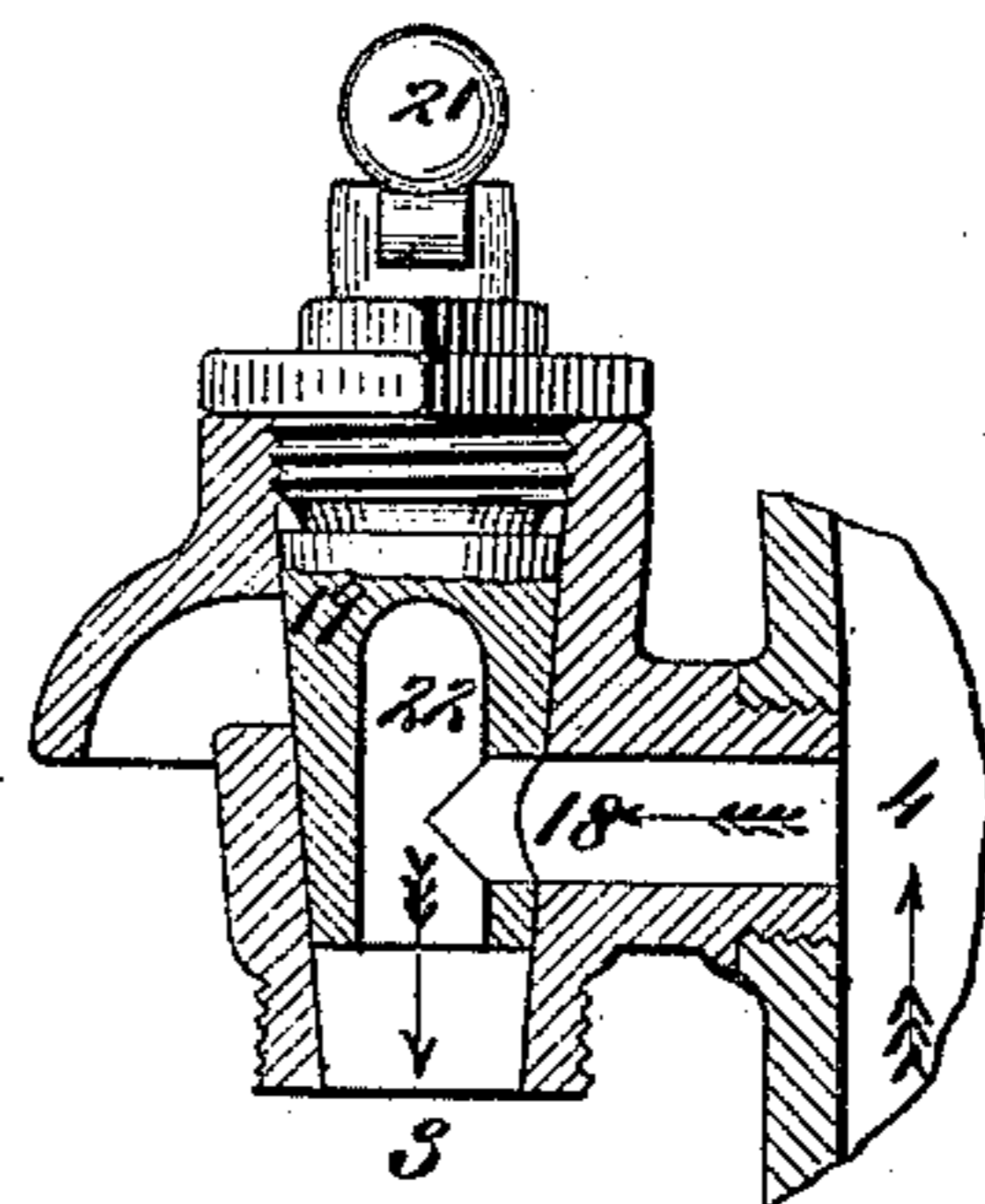


Fig. IV.



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AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 415,516, dated November 19, 1889.

Application filed March 1, 1889. Serial No. 301,625. (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—

10 Figure I is a vertical section illustrative of my improvement, this section being taken on line II, Fig. II. Fig. II is a section taken on line II II, Fig. I. Fig. III is a transverse section taken on line III III, Fig. I; and Fig. IV
15 is a detail vertical section taken on line IV IV, Fig. III.

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 the train-pipe, and 3 the pipe leading to the engine-brake.

4 represents a port communicating with the pipe 1, and extending in an upwardly direction and communicating with a port 5, which forms a communication between it (the port
30 4) and the pipe 2. Between these ports 4 and 5 is located a hand-valve 6, preferably made of conical shape, which is provided with a stem 7, extending through a cap 8, and provided with an operating-handle 9. Surrounding the stem 7 within the cap 8 is a spring 10,
35 the office of which is to hold the valve 6 down close to its seat. The lower end of the valve 6 is made hollow, forming a port 11, through which the air passes from the port 4 to the
40 port 5. In this port 11 is a reducing-valve 12, having a seat 13, against which it is held by a spring 14, as shown in Fig. I, where the lower end of the valve 6 is shown in section. The seat 13 of the valve 12 is made preferably in a plug 15, screwed into the lower end
45 of the valve 6 and through which the port 11 passes.

16 represents a port or perforation in the upper part of the valve 6, and which, when
50 the valve is turned in the proper direction,

opens communication between the port and an exhaust-port 17.

18 represents a port, forming a communication between the port 4 and the pipe 3, leading to the engine-brake. In this port is
55 located a valve 19, provided with a stem 20, to which is secured an operating handle or lever 21.

22 represents an opening in the valve 19, which, when the valve is turned in the proper
60 direction, permits the air to pass from the port 4 through the port 18 into the pipe 3, as shown in Fig. IV. Then when the valve 19 is turned back to the position shown in Fig. I the communication between the port 4 and
65 pipe 3 is closed and the air allowed to exhaust from the pipe 3, as indicated by the arrows in Fig. I.

The operation is as follows: The air passing through the pipe 1, as indicated by the
70 arrows in Fig. I, opens the valve 12, owing to its pressure in excess of that of the spring 14, and enters the port 5, passing into the pipe 2. Then when the air in the pipe 2 reaches a certain pressure the valve 12 will automati-
75 cally close, and by providing such a valve the pressure in the pipe is reduced from that in the pipe 1, it being desirable to keep a higher pressure in the pipe 1 than in the pipe 2. For the purpose of exhausting the air
80 from the pipe 2, the port 16 is made in the valve 6, which, when the valve is turned in the proper position, opens communication to the port 17.

In case the brakes should stick and a higher
85 pressure is wanted in the pipe 2 to release them, it may be obtained by opening a valve 30, located in a short port 31, forming a direct communication between the ports 4 and 5. (See Figs. I and III.)
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To apply the engine-brakes, the valve 19 is turned in the proper position, or in the position shown in Fig. IV, and then to exhaust the air from the pipe 3 the valve is turned to the position shown in Fig. I.
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A device somewhat similar to this is also shown and described in my application, Serial No. 301,626, of even date herewith.

I claim as my invention—

1. The combination of a pipe leading from 100

the main reservoir, a train-pipe, ports forming communication between said pipes, a hand-valve located between said ports and having a port adapted to communicate with
 5 the said ports, and a reducing-valve located in and completely closing the port in said hand-valve, said reducing-valve completely closing communication between the train-pipe and main reservoir, and being adapted
 10 to be closed by the pressure from the train-pipe and to be opened by the pressure from the main reservoir, substantially as set forth.

2. The combination of a pipe leading from the main reservoir, a train-pipe, ports forming
 15 communication between the said pipes, a valve having a hollow lower end and located between the said ports, a reducing-valve in the hollow portion of said hand-valve, said reducing-valve being adapted to close under
 20 the pressure in the train-pipe and entirely shut off communication between the latter and main reservoir, and a removable plug forming the seat for said reducing-valve, substantially as and for the purpose set forth.

25 3. The combination of a pipe leading from the main reservoir, a train-pipe, ports forming communication between said pipes, a valve located between said ports and adapted to be
 30 closed by the pressure from the train-pipe and to be opened by pressure from the main res-

ervoir-pipe to admit pressure to the train-pipe, said valve being adapted to automatically close entire communication between said train-pipe and main reservoir, a pipe leading
 35 to the engine-brake, a port forming communication between the port of the main reservoir-pipe and the pipe leading to the engine-brake, a valve 19, and an exhaust-port in the valve, substantially as and for the purpose set forth.
 40

4. The combination, with the main reservoir-pipe, the train-pipe, and ports 4 5 17, forming communication between said pipes and said pipes and the open air, respectively, a hand-valve 6, passing through said ports
 45 and having ports 11 16, extending there-through in adverse directions and adapted to open communication between the ports 4 and 5 and open air and port 5 alternately as the hand-valve is turned, a reducing-valve
 50 arranged in the lower end of said hand-valve to entirely close port 4, a spring for holding said reducing-valve closed against the pressure in port 4, a port 31 between ports 4 and 5, and an independent cock controlling said
 55 port 31, substantially as set forth.

FRANK LANSBERG.

In presence of—

EDW. S. KNIGHT,
 THOMAS KNIGHT.