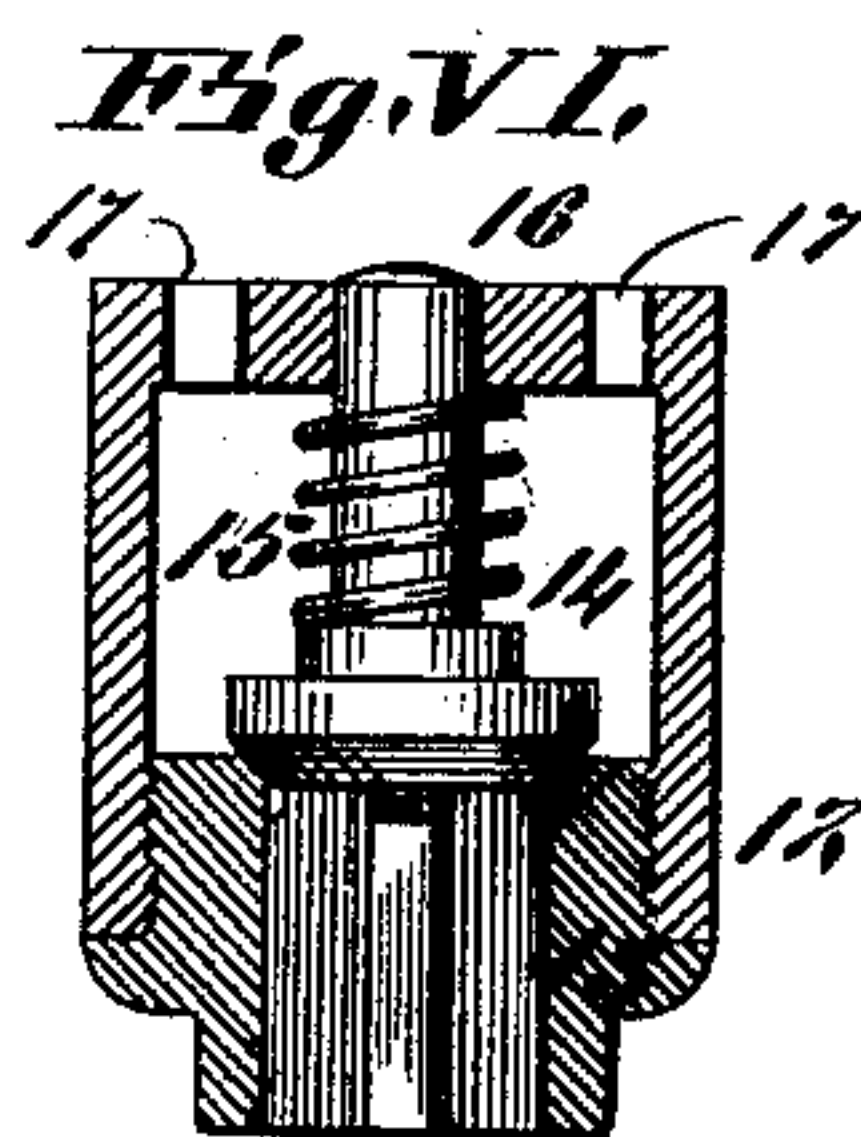
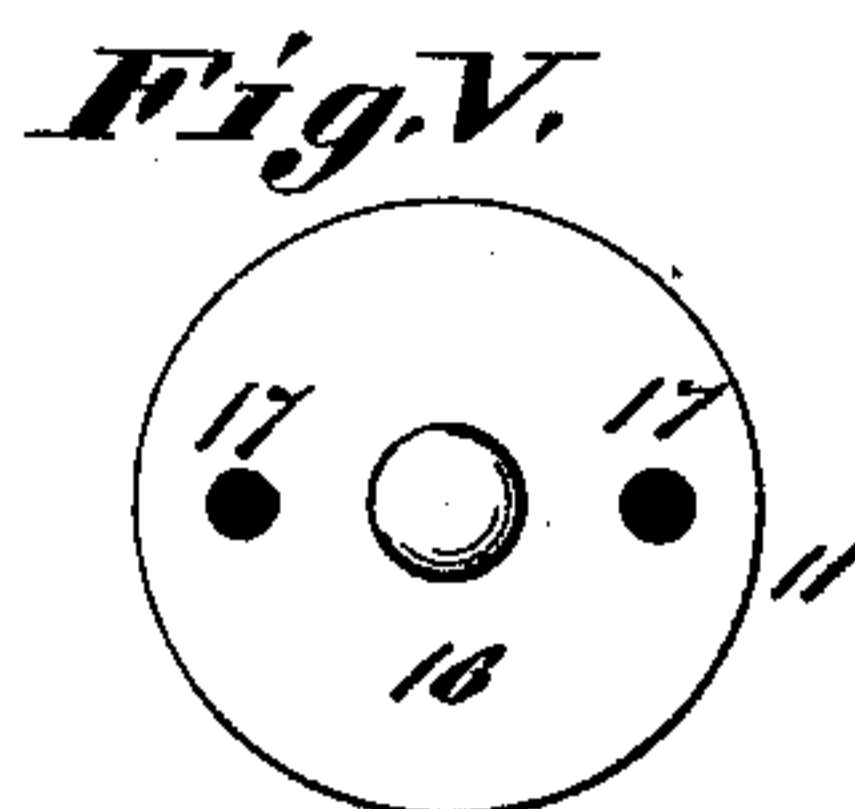
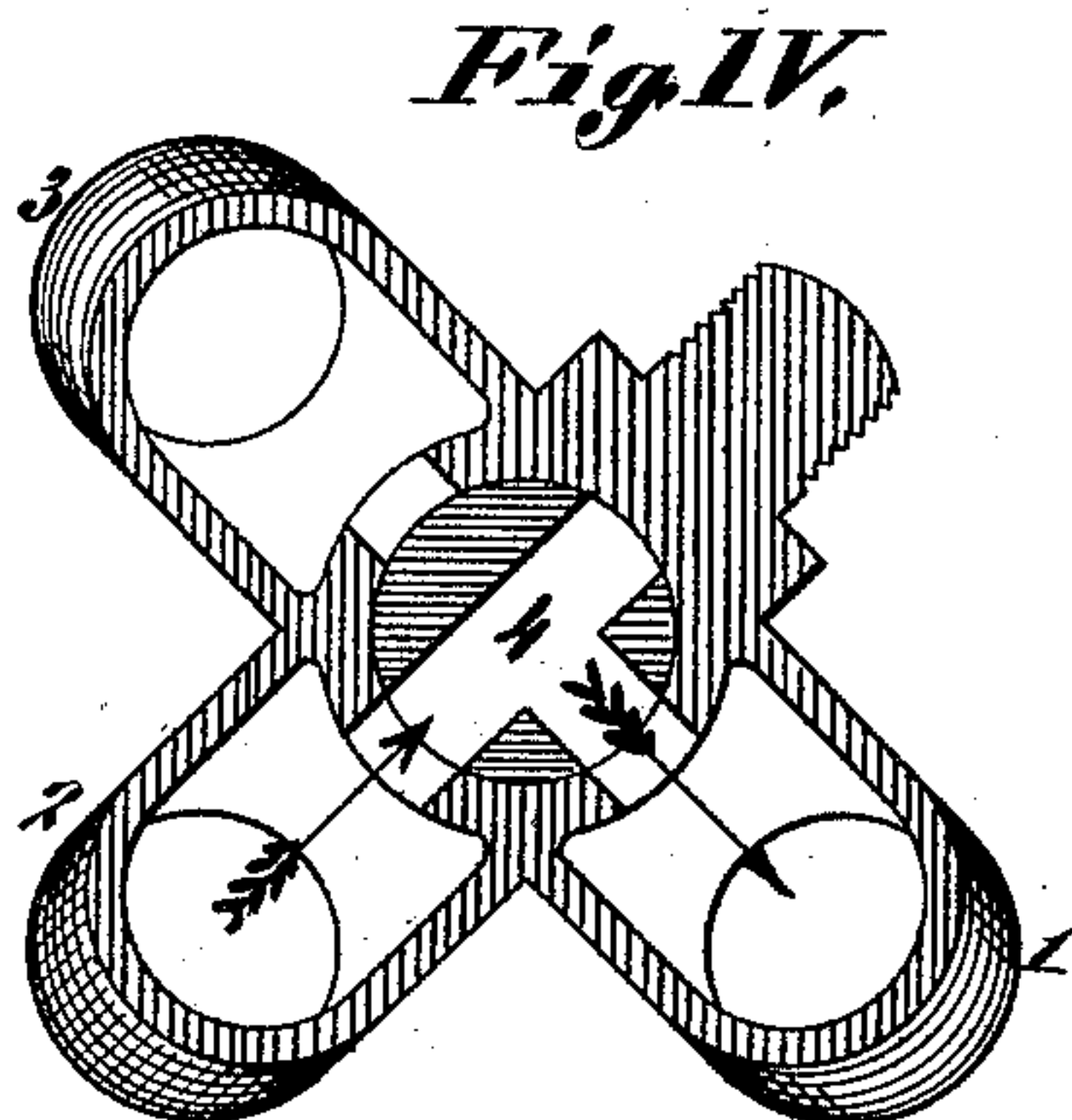
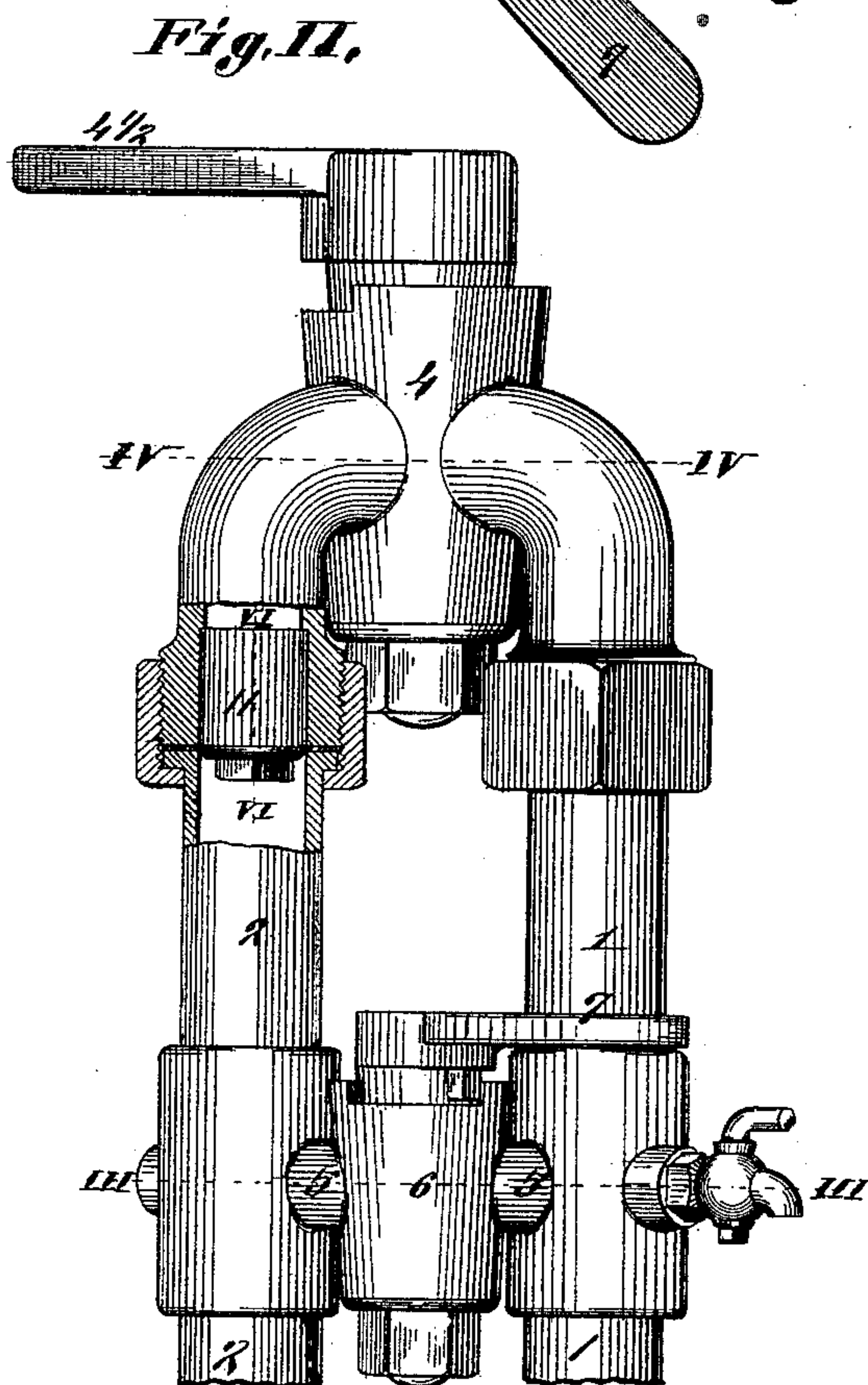
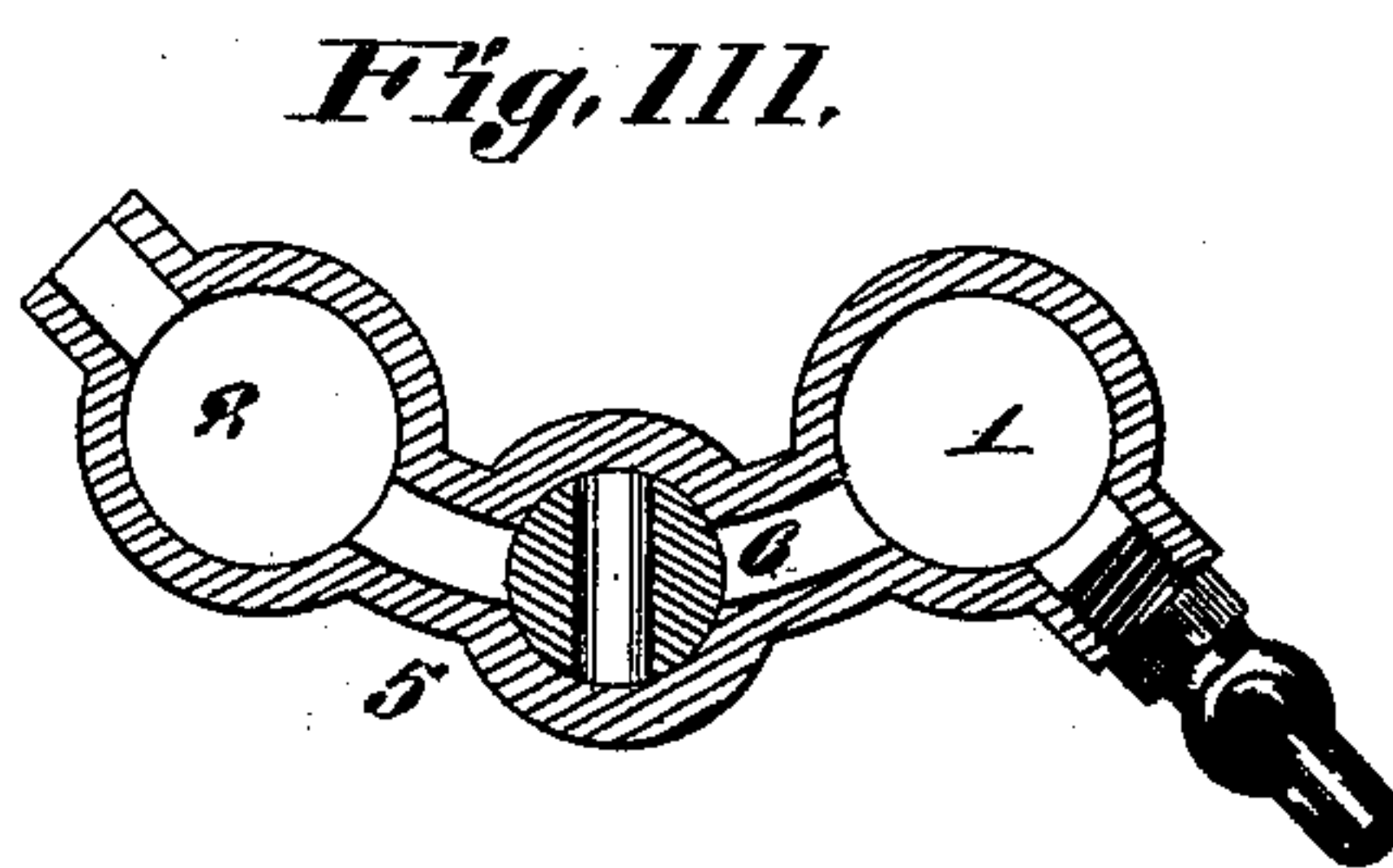
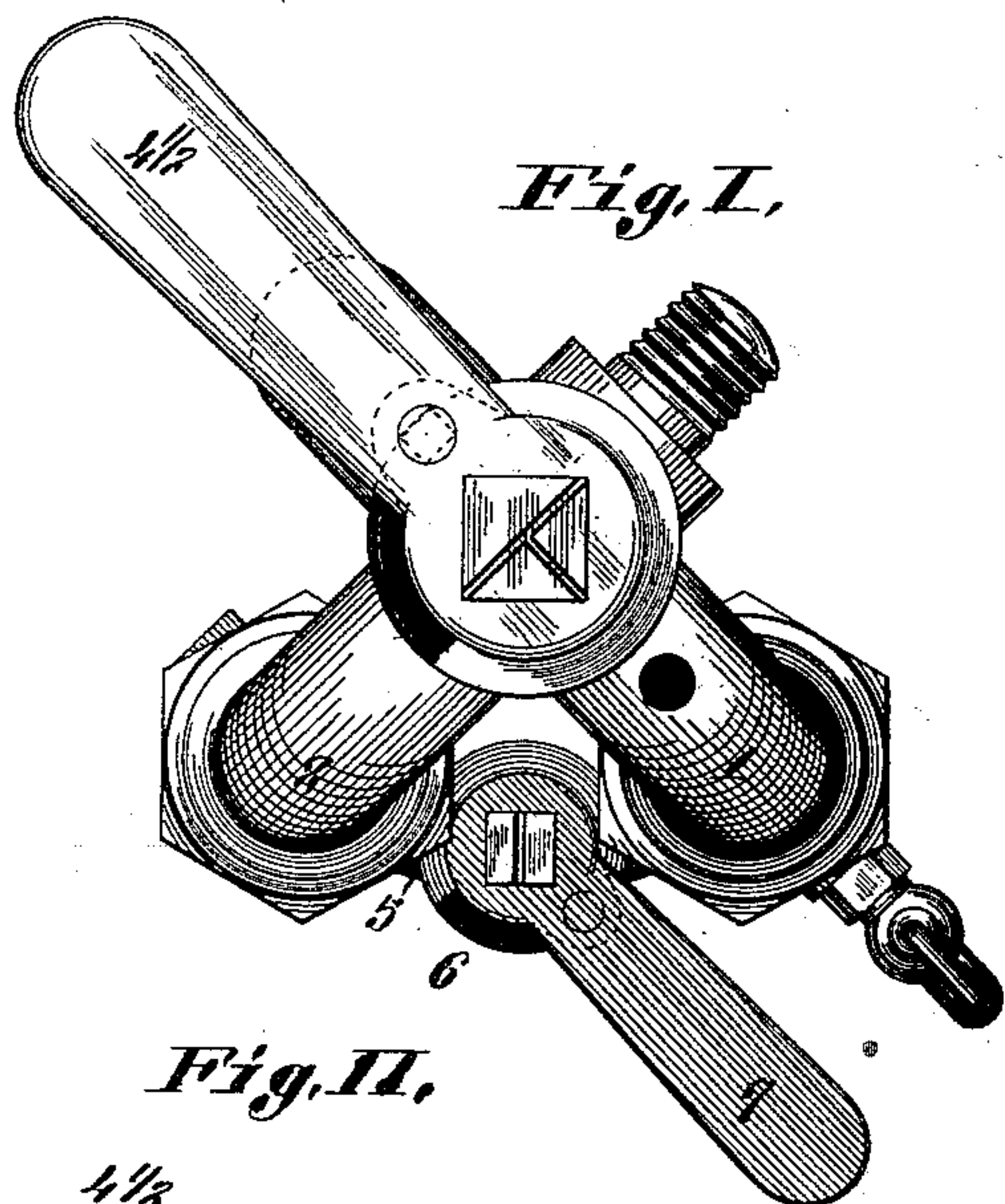


(No Model.)

F. LANSBERG.  
AIR BRAKE.

No. 415,513.

Patented Nov. 19, 1889.



Attest:  
E. Arthur.  
H. S. Knight.

Inventor:  
Frank Lansberg  
By Knight Bros  
attys



# UNITED STATES PATENT OFFICE.

FRANK LANSBERG, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE LANSBERG BRAKE COMPANY, OF EAST ST. LOUIS, ILLINOIS.

## AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 415,513, dated November 19, 1889.

Application filed January 24, 1888. Serial No. 261,761. (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 I is a top view illustrating my improvement. Fig. II is a side elevation, part in section. Fig. III is a horizontal section taken on line III III, Fig. II. Fig. IV is a similar view taken on line IV IV, Fig. II. Fig. V is a top view of the pressure-valve. Fig. VI is a section of the valve taken on line VI VI, Fig. II.

My invention relates to a device for letting off the brakes; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, 1 represents what is known as the "train-pipe" in an air-brake system, and 2 represents a pipe from the main receiver.

3 represents an exhaust-pipe. These pipes are united in a three-way valve 4, provided with an operating-lever 4 $\frac{1}{2}$ . It is well understood that when the brakes are to be applied the valve 4 is turned to exhaust the air from the train-pipe 1 into the exhaust-pipe 3, and when the brakes are to be released the valve is turned back into the position shown in Fig. IV to allow the air to pass from the air-receiver pipe 2 to the train-pipe 1. When the valve is thus turned back, the pressure in the pipes 1 and 2 must be greater than the pressure in the air-tanks beneath the cars and in the brake-cylinders, (these two latter parts are not here shown, as they form no part of this invention,) or the brakes will not be released. It frequently occurs that the pressure in the pipe 1 when the valve 4 is turned to the position shown in Fig. IV does not equal the pressure in the tanks beneath the cars and the brake-cylinders, and then, as stated, the brakes will not be released by turning the valve 4 into the position shown in Fig. IV.

The object of this invention is to provide

a means whereby the engineer can release the brakes at such times, avoiding the necessity heretofore existing of going to the different cars and opening valves to allow the escape of air from the brake-cylinders.

The invention consists in placing a pipe 5 between the pipes 1 and 2, and locating a valve 6 with an operating-lever 7 in this pipe. This valve is not intended to be operated in applying the brakes, nor is it necessary to operate it in releasing the brakes, when the same can be done by means of the valve 4; but when it cannot be done by means of the valve 4 (which is the case, as stated, when the pressure in the pipe 1 does not exceed the pressure in the tanks between the cars and the brake-cylinders) then this pipe 5 and valve 6 are used to make a direct connection between the pipes 1 and 2, and thus get a direct pressure of the air in the main tank to overcome the pressure of the air in the receivers beneath the cars and the brake-cylinders. It will be understood that there is a valve located between the train-pipe and the respective air-reservoirs beneath the cars, and it is this valve that must be opened by the excess of pressure in the pipe 1 before the brakes can be released. I have not in this application shown such valve, as it forms no part of this invention; but it is shown in an application filed by me herewith and identified as "Case C," Serial No. 261,762.

11 represents a pressure-valve located in the pipe 2 above the pipe 5. This valve preferably consists of a casing or housing 12, with a seat 13, upon which the valve proper 14 fits. The stem of the valve is surrounded by a spring 15, that holds the valve upon its seat, and the stem passes through a head 16 on the housing, which is perforated at 17 for the passage of the air. (See Figs. V and VI. This valve is set to open under a certain pressure—say, for example, thirty pounds—so that an excess of pressure may be kept in the main tank, (not shown in this application, but which is shown at 2 in an application filed by me herewith and identified as "Case A," Serial No. 261,760;) and it will be understood that by opening this valve 6 this excess of



pressure is allowed to pass directly to the pipe 1, and thus the pressure in the pipe 1 made to exceed the pressure in the tanks beneath the cars and in the brake-cylinders, whereas the  
5 pressure which would pass through the pressure-valve 11 and through the three-way valve 4 would not be sufficient to do this.

As stated, I have not in this application shown the tanks beneath the cars or the  
10 brake-cylinders, as they form no part of this invention; but such reservoir and cylinders are shown in an application filed by me herewith and identified as "Case A," Serial No. 261,760.

15 I claim as my invention—

1. In an automatic air-brake, the combination, with the main pipe, the engineer's brake-valve, and the train-pipe, of a valve and connection 5, located between the train-pipe and  
20 the pipe leading from the main pipe of the engineer's brake-valve, substantially as set forth.

2. In an air-brake, the combination, with  
25 the air-receiver pipe, train-pipe, valve for controlling the passage of air between said pipes,

and an exhaust, of a pipe 5, forming a communication directly between the receiver-pipe and the train-pipe, said pipe 5 being provided with an independent valve, substantially as  
30 and for the purpose set forth.

3. In an air-brake, the combination, with the air-receiver pipe, train-pipe, exhaust-pipe, and a valve located at the junction of said pipes, of a pipe forming a communication between the said air and train pipes beneath  
35 their junction and provided with an independent valve, substantially as and for the purposes set forth.

4. In an air-brake, the combination, with the air-receiver pipe, train-pipe, exhaust-pipe,  
40 a valve located at the junction of said pipes, and a pressure-valve in said air-receiver pipe, of a pipe 5, forming a communication between the air-receiver pipe and train-pipe, and an  
45 independent valve in said pipe 5, substantially as and for the purposes set forth.

FRANK LANSBERG.

In presence of—

GEO. H. KNIGHT,

EDWD. S. KNIGHT.