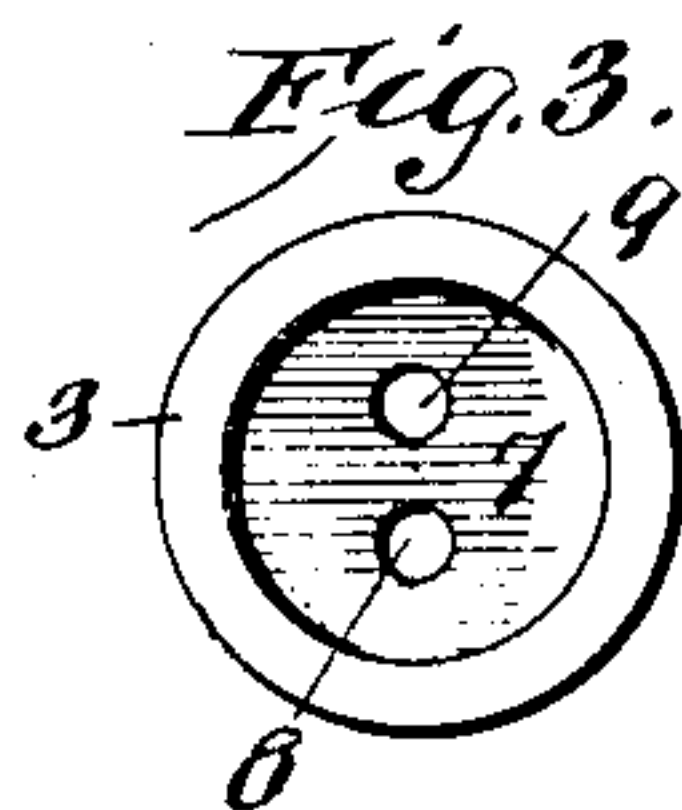
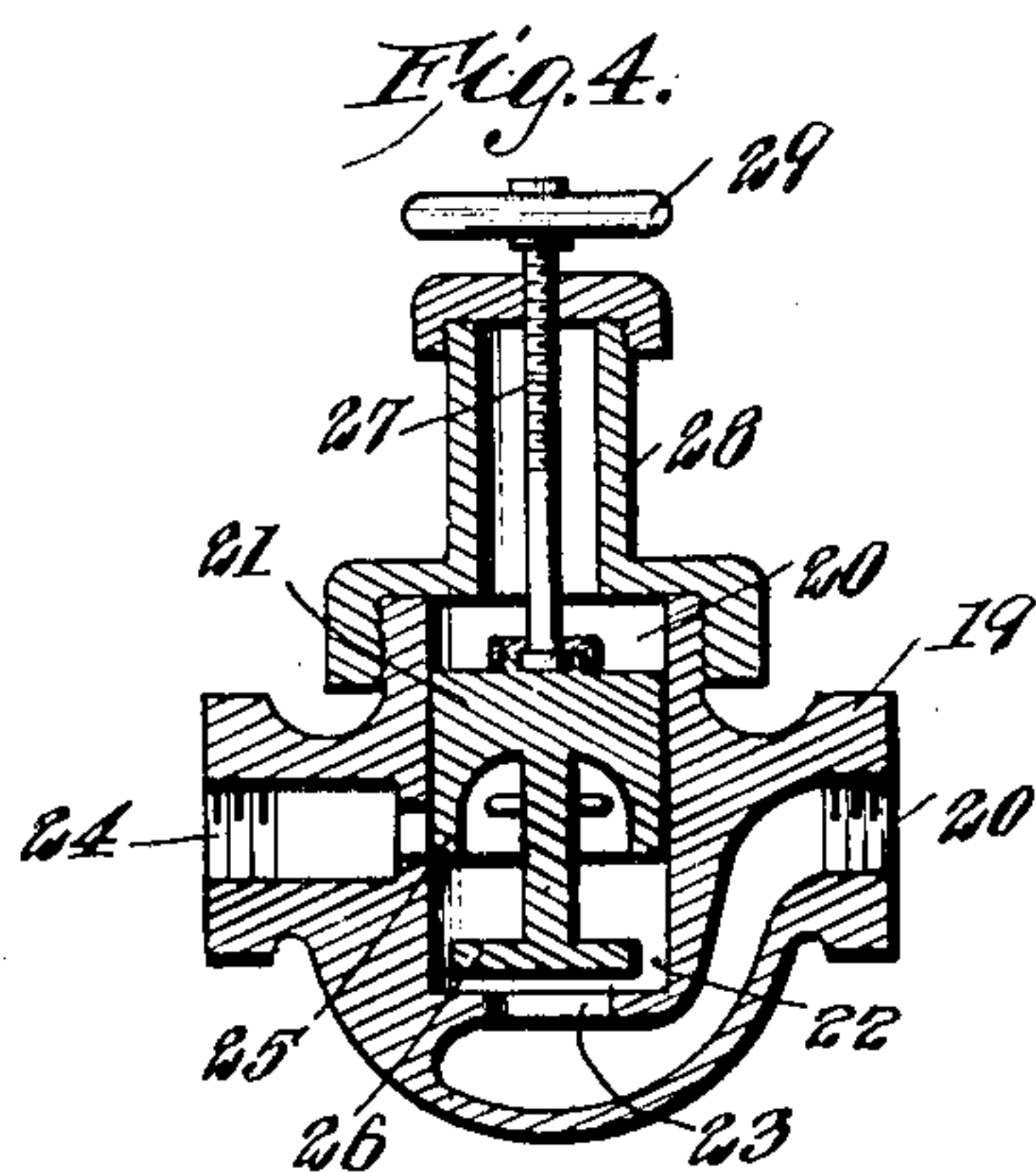
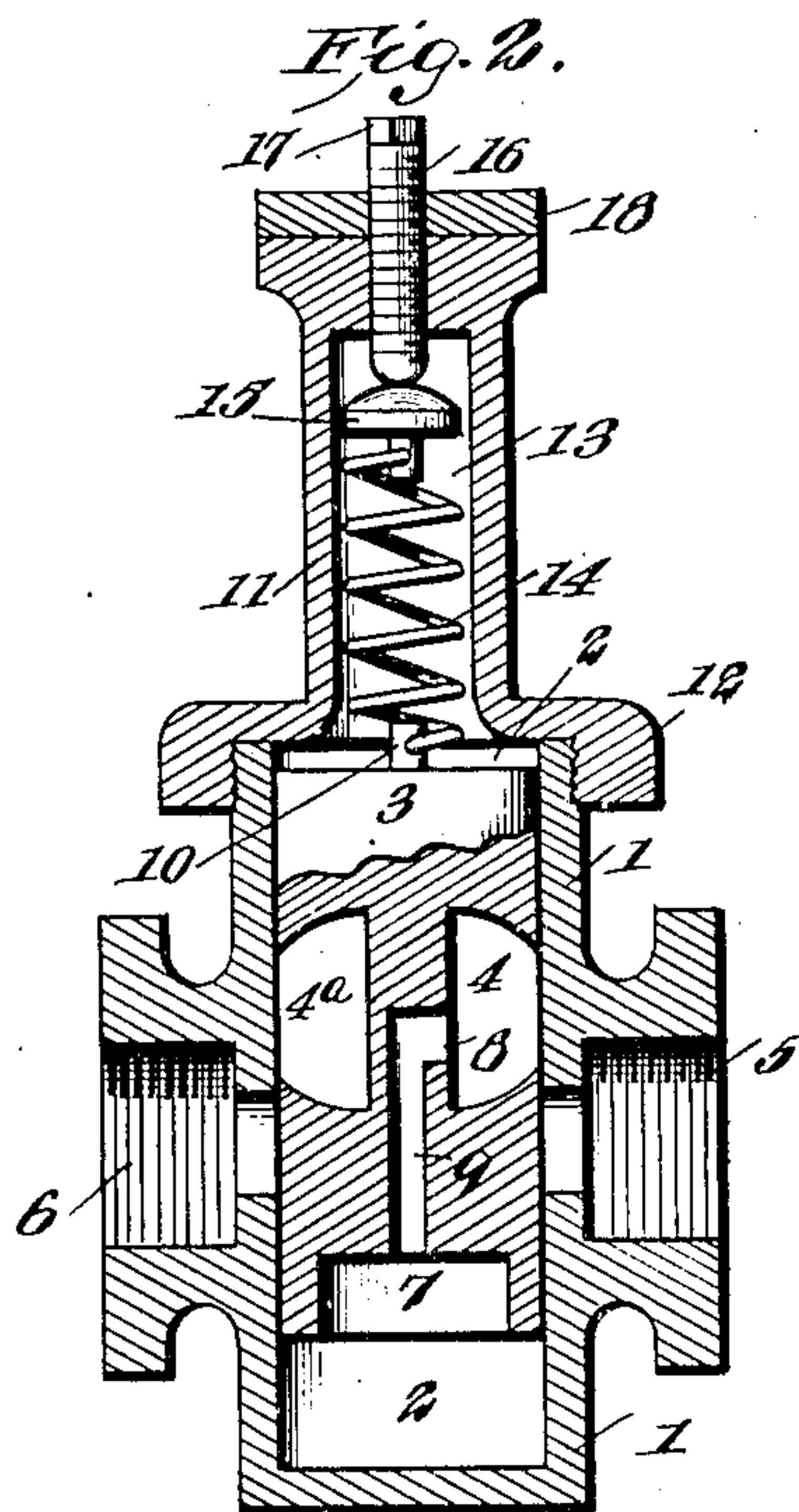
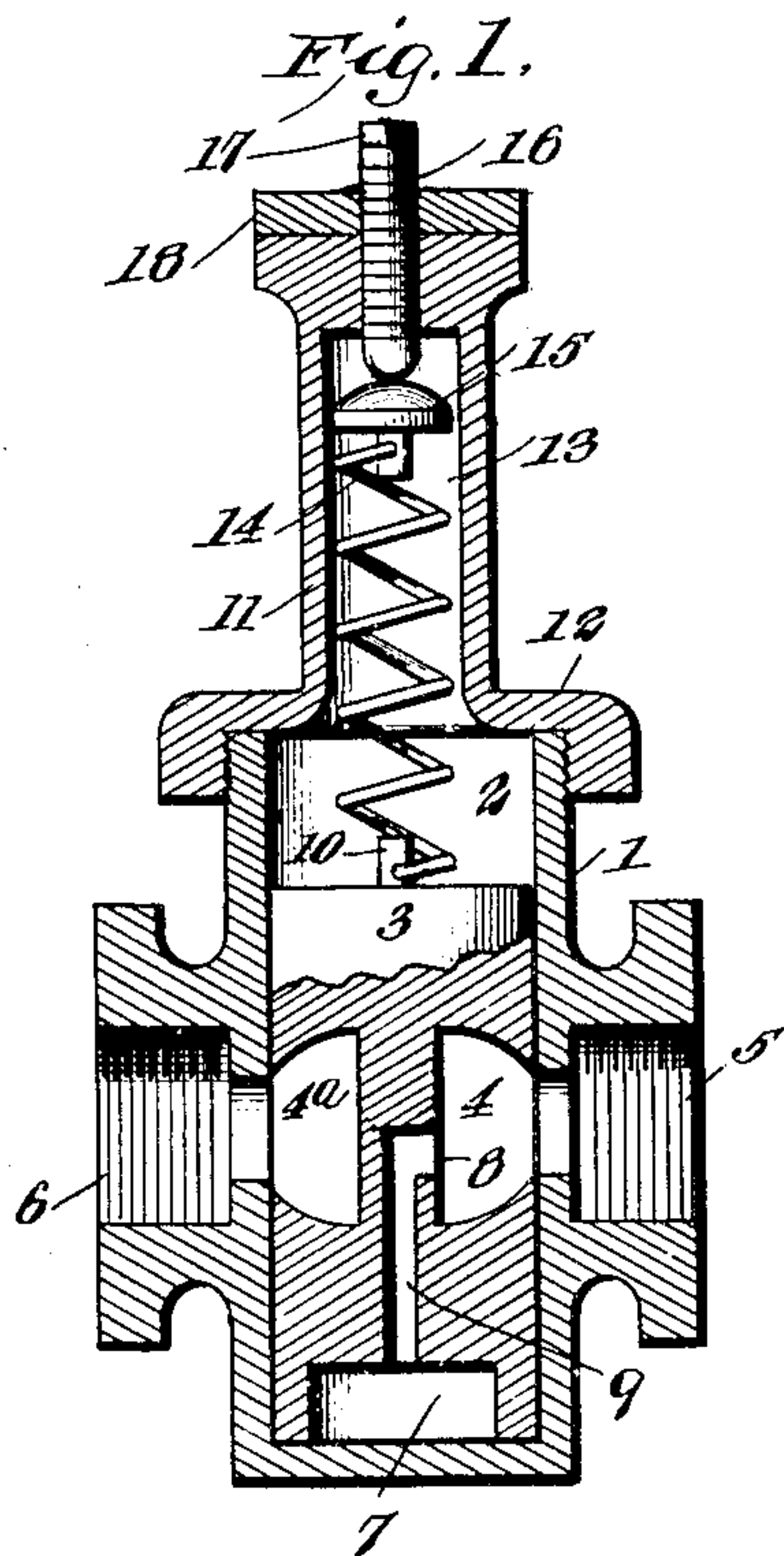


No. 887,564.

PATENTED MAY 12, 1908.

S. YBARRA.
PRESSURE REGULATING VALVE.

APPLICATION FILED JAN. 30, 1908.



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UNITED STATES PATENT OFFICE.

SAMUEL YBARRA, OF ST. LOUIS, MISSOURI.

PRESSURE-REGULATING VALVE.

No. 887,564.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed January 30, 1908. Serial No. 413,352.

To all whom it may concern:

Be it known that I, SAMUEL YBARRA, a citizen of the United States, and a resident of St. Louis, in the State of Missouri, have made certain new and useful Improvements in Pressure-Regulating Valves, of which the following is a specification.

My invention is an improvement in pressure regulating valves, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof—Figure 1 is a longitudinal section through the valve showing the plunger in one position. Fig. 2 is a similar view showing the plunger in another position. Fig. 3 is a bottom view of the plunger, and Fig. 4 is a longitudinal section through a modified form of valve.

In the present embodiment of my invention, the valve casing 1, is provided with a central longitudinal bore 2, in which moves the plunger 3, the said casing having at about the longitudinal center thereof an inlet opening 5, and an outlet opening 6 communicating with the bore.

The plunger 3 is cylindrical in form, and is provided at approximately its center with oppositely arranged recesses 4 and 4^a, adapted to register with the inlet and the outlet respectively, when the plunger is in its lowermost position as shown in Fig. 1. The lower end of the plunger is recessed as at 7, and passages 8 and 9 place the recesses 4 and 4^a respectively in communication with the said recess 7. The passage 9 also communicates with the recess 4 at the upper end thereof.

An auxiliary casing 11 is secured to the open end of the casing 1, the said auxiliary casing being provided with a flange 12, threaded on to the end of the casing, and the bore 13 of the auxiliary casing communicates with the bore 2 of the casing 1.

The upper end of the plunger 3 is provided with a pin 10, to which is secured one end of a spring 14, the other end of the spring being connected with a plug 15, which is engaged by a screw 16, threaded through the end of the auxiliary casing and having its outer end squared as at 17 for engagement by a tool whereby to rotate said screw, and a lock nut 18 is provided for locking the screw in its adjusted position.

In operation, fluid being admitted to the valve through the recess 5, passes through the passage 8 into the recess 7, thus acting to

force the plunger upward into the position shown in Fig. 2. Since the passage connecting the recesses 4 and 4^a is restricted, only a certain amount of motive fluid may pass therethrough, and an excess of pressure acts upon the bottom of the plunger to move it upward against the resistance of the spring. By regulating the tension of the spring, the pressure through the passage between the recesses may be regulated to any desired extent. As long as this pressure remains constant, the plunger will not be acted upon, the spring retaining it in its lowermost position. Should, however, there be any material increase in the pressure, the plunger will be moved upward to partially cut off the inlet and the outlet, thus reducing the pressure in the casing.

In the construction shown in Fig. 4, the casing 19 is provided with a longitudinal bore 20, in which moves the plunger 21. The outlet 22 opens into the bottom of the bore as shown at 23, and the inlet 24 leads from approximately the center of the bore. The plunger is cut away near its lower end to form a petticoat 25, adapted to close the inlet 24, the lower end 26 of the plunger being adapted to close the outlet opening 23. The upper end of the plunger has rotatably connected therewith a screw threaded rod 27, threaded through the end of an auxiliary casing 28, which is threaded on to the main casing, and the outer end of the rod is provided with a hand wheel 29 for convenience in manipulating the same. It will be noticed from an inspection of Fig. 4, that the petticoat 25 closes the inlet 24 completely, before the lower end 26 of the plunger engages the bottom of the bore to close the outlet opening 23. The above described form of valve is especially adapted for controlling high pressures, since the petticoat closes the inlet before the bottom of the plunger engages the bottom of the bore to close the outlet opening.

I claim—

1. A pressure regulating valve, comprising a casing having a longitudinal bore, and provided at approximately its longitudinal center with inlet and outlet openings, a plunger movable in the bore and provided at approximately its center with recesses adapted to register with the inlet and the outlet openings when the plunger is in its lowermost position, the lower end of the plunger being recessed, and said plunger being pro-

vided with passages leading from the first-named recesses to the bottom recess, one of said passages communicating with both recesses, a spring for normally retaining the plunger in its lowermost position, and means for regulating the tension of the spring.

2. A pressure regulating valve, comprising a casing having a longitudinal bore, and an inlet and an outlet leading from approximately the longitudinal center of the bore, a plunger movable in the bore, said plunger being provided with a passage for placing the inlet and the outlet in communication when said plunger is at the lower end of the casing, and with a passage leading from the inlet to the bottom of the plunger, a spring for normally retaining the plunger in its lowermost position, and means for adjusting the tension of the spring.

3. A pressure regulating valve comprising a casing provided with an inlet and an outlet, a plunger movable in the casing, said plunger having a passage for placing the inlet and the outlet in communication when the plunger is in one position, and having a

passage leading from the inlet to the end of the plunger, whereby to admit the motive fluid between the end of the plunger and the casing, to move said plunger to cut off the communication between the inlet and the outlet, a spring acting to normally maintain the plunger in position to place the inlet and the outlet in communication, and means for regulating the tension of the spring.

4. A pressure regulating valve, comprising a casing provided with an inlet and an outlet, a plunger movable in the casing and normally connecting the inlet and the outlet, means in connection with the plunger and the casing for admitting the motive fluid to one end of the plunger to move the same, whereby to cut off the communication between the inlet and the outlet, a spring acting normally to prevent such movement of the plunger, and means for adjusting the tension of the spring.

SAMUEL YBARRA.

Witnesses:

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