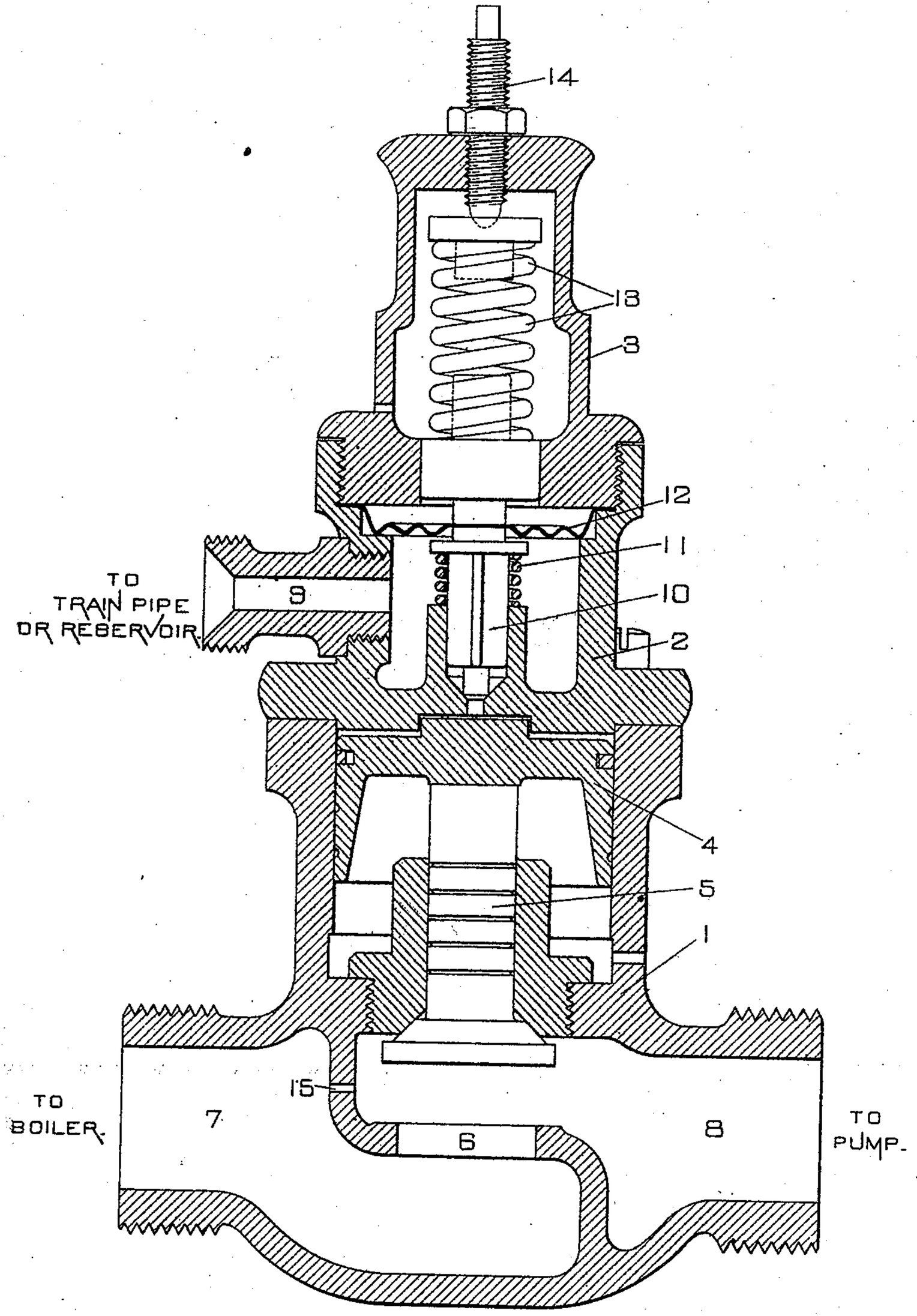
(No Model.)

A. P. MASSEY.

GOVERNOR FOR STEAM PUMPS.

No. 501,018. Patented July 4, 1893.



WITNESSES:

H. A. Oberly.

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INVENTOR

Albert P. Massey.

UNITED STATES PATENT OFFICE.

ALBERT P. MASSEY, OF WATERTOWN, NEW YORK.

GOVERNOR FOR STEAM-PUMPS.

SPECIFICATION forming part of Letters Patent No. 501,018, dated July 4, 1893.

Application filed June 24, 1892. Serial No. 437,831. (No model.)

To all whom it may concern:

Be it known that I, ALBERT P. MASSEY, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented a new and useful Improvement in Governors for Steam-Pumps, of which the following, taken in connection with the accompanying drawing, is a specification.

The object of my invention is to produce a sensitive governor to control the admission of steam to a pump actuated by steam.

The drawing is a sectional view of the device.

In the drawing 1, 2, and 3 indicate the casing of the governor.

4 is a piston fitted to a cylinder.

5 is a steam valve which closes opening 6 when pressed down by the piston 4.

7 is the inlet for steam from the boiler.

8 is the outlet for steam to the pump.

9 is the connection from the receiving reservoir.

10 is a valve controlling the flow of fluid-pressure from the receiving reservoir to the piston 4.

11 is a spring to open valve 10.

12 is a flexible corrugated diaphragm secured by its outer edge between parts 2 and 3 of the case.

13 is a spring for reinforcing the diaphragm for high pressure.

14 is an adjusting screw for the spring.

15 is a small orifice to keep the pump running slowly when 6 is closed.

The operation is as follows: The flexible corrugated diaphragm 12 is made of such thickness and temper as to resist the opening of valve 10 until a given pressure is accumulated in the receiving reservoir. When the pressure in the receiving reservoir exceeds the resistance of the diaphragm, it is forced upward and spring 11 opens valve 10; this allows fluid pressure to flow from the reservoir past valve 10 to the piston 4 which forces valve 5 down upon the opening 6 and shuts off the steam communication between the boiler and the pump. When the pressure in the reservoir falls below the resistance of the diaphragm, the valve 10 is closed and the steam pressure below valve 5 forces it upward and opens the passage for steam to the pump.

As it is desirable to use different pressures in the reservoir at different times and as one diaphragm can only serve for one certain pressure, a spring 13 is added with an adjusting screw 14 by means of which the resistance of the diaphragm can be increased as much as desired.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of a valve body having supply and delivery connections, a regulating valve controlling communication between said connections, a cylindrical piston stem attached to said regulating-valve working in a cylinder whereby steam may cause opening movement to said regulating-valve, a piston unconnected with the regulating valve, but abutting against its stem and working in a chamber secured to the valve-body, an exhaust port to release pressure from the space between the regulating-valve-piston-stem and the piston unconnected with the regulating-valve, an air-pressure valve controlling an air port between the chamber containing the piston and a chamber connected with an air supply, a spring to open said air-pressure valve, a flexible corrugated diaphragm exposed on one side to the pressure of the air supply, a spring on the opposite side of the flexible diaphragm connected with an adjusting screw, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 21st day of June, A. D. 1892.

ALBERT P. MASSEY.

Witnesses:

HENRY W. BOYER,

MICHAEL J. MORKIN.