

No. 819,492.

PATENTED MAY 1, 1906.

T. B. WYLIE.
GAS CONTROLLER.

APPLICATION FILED MAY 23, 1905.

Fig. 1.

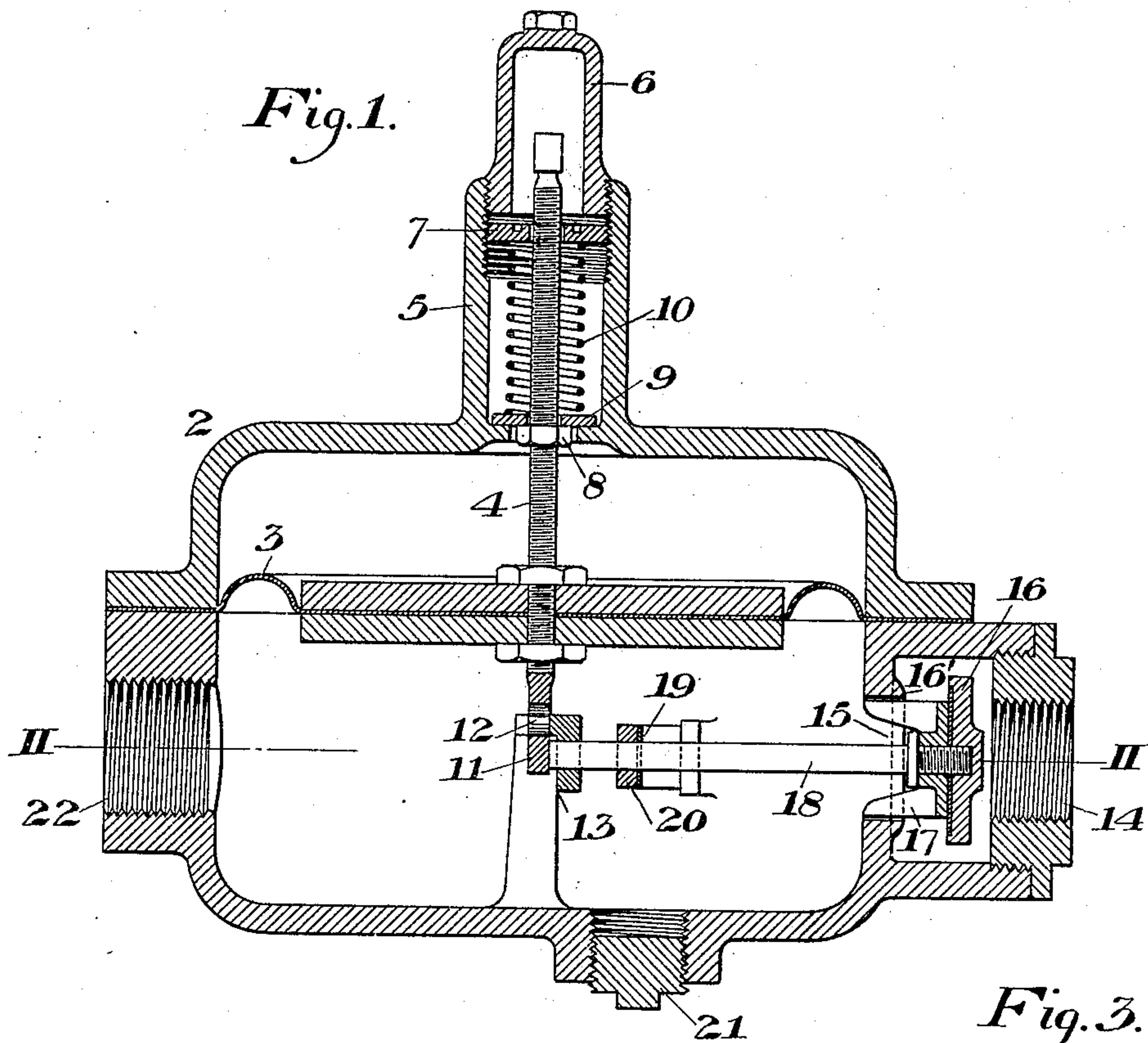


Fig. 2.

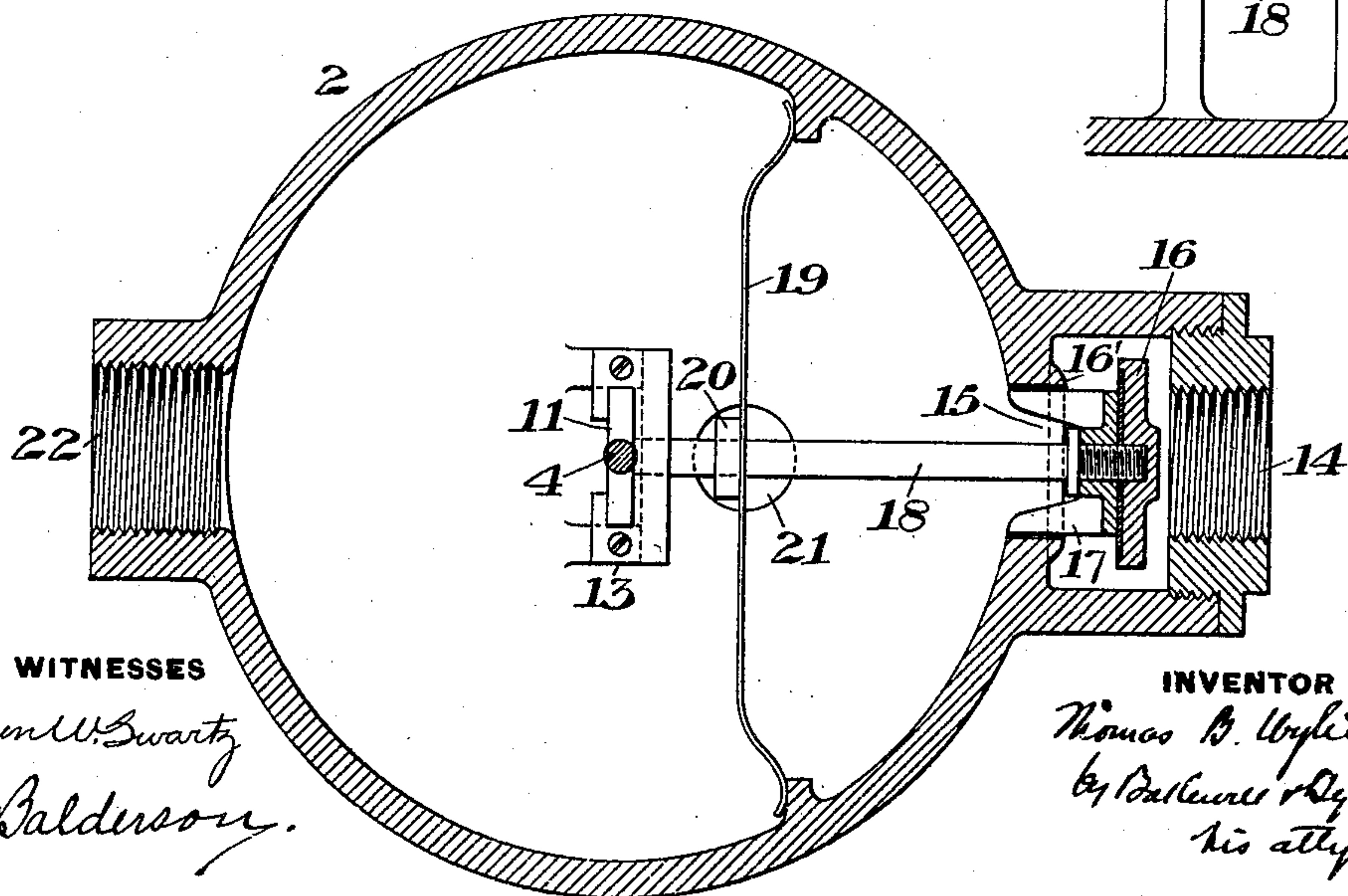
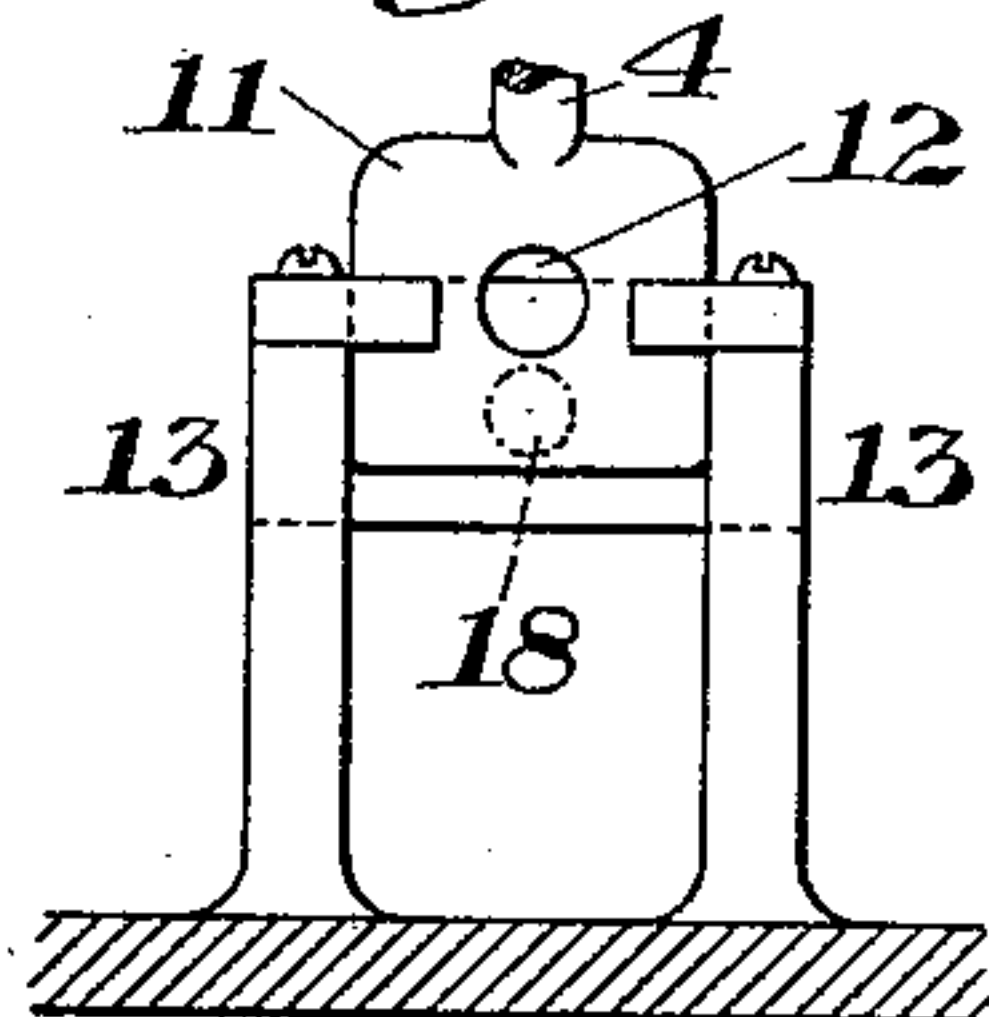


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE

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GAS-CONTROLLER.

No. 819,492.

Specification of Letters Patent.

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Application filed May 23, 1905. Serial No. 261,905.

To all whom it may concern:

Be it known that I, THOMAS B. WYLIE, of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Gas-Controller, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional side elevation of my improved controller. Fig. 2 is a cross-section on the line II II of Fig. 1, and Fig. 3 is a detail view showing the lower portion of the diaphragm-rod.

My invention relates to that class of devices which are employed for shutting off the gas-supply when the pressure exceeds a predetermined limit; and the object of the invention is to provide a single regulator which will automatically shut off the gas at certain upper and lower limits of pressure.

In the drawings, 2 represents a cylindrical casing, preferably made in divided parts, between which is secured a flexible diaphragm 3. To the central plate portion of this diaphragm is secured a rod 4, which extends upwardly through a hole in the top of the casing and into a tubular extension 5, which is normally closed by screw-cap 6. The tubular extension 5 is internally screw-threaded and is engaged by the screw-threaded edge portion of an adjustable disk 7, having recesses or holes to receive a spanner by which it may be adjusted up or down. To the rod is secured a nut or adjustable ring 8, which under the normal pressure in the controller is in the position shown, bearing against a loose washer 9, which surrounds the rod and is forced down against the ledge at the lower end of the extension 5 by a spring 10. This spring bears at its upper end against the adjustable disk 7 and forces the washer 9 down to its seat.

The lower end 11 of the diaphragm-rod is flattened out, as shown in Fig. 3, and provided with a hole 12, being guided in its vertical movements by the guide-wings 13, supported on the base of the diaphragm-chamber.

The gas enters the chamber below the diaphragm through the inlet-port 14 and valved opening 15. The valve 16 seats with the pressure against the seat 16', being guided by wings 17. The stem 18 of this valve extends through a hole in the guide 13, which is in alinement with the hole 12 in the diaphragm-rod when said rod is depressed in the

manner hereinafter described. A leaf-spring 19 bears against a collar 20; secured to the rod and against internal lugs on the casing and normally tends to draw the valve to closed position. A hole is provided in the lower face of the casing in line with the valve-rod, this hole being normally closed by a screw-plug 21 or other suitable closure.

22 is the outlet for the gas.

In the operation of the device the valve is pushed open by an instrument inserted through the hole in the lower face of the casing. The spring 10 then forces the diaphragm-rod downwardly, when the valve-rod is released and its end will abut against the flattened lower end of the diaphragm-rod. When the gas flows through the controller or regulator, it will exert a lifting pressure on the diaphragm and tend to force the diaphragm-rod upwardly against the pressure of the spring against whose lower washer the nut or shoulder on the diaphragm-rod presses. If the pressure exceeds the predetermined limit, this pressure will force the diaphragm-rod upwardly, lifting the loose washer 9 against the action of the spring until the lower flattened end of the diaphragm-rod is raised above the valve-rod. The spring will then at once close the valve. The valve may be opened and set again in the same manner as before described. During the normal operation of the device the pressure holds the diaphragm-rod up in the position shown. If the pressure falls below the predetermined limit, the pressure on the diaphragm will decrease until the diaphragm-rod is lowered to a point where the hole 12 registers with the end of the valve-stem. The spring will then force the valve closed, its stem moving through this hole. By taking out the lower screw-plug the device may again be set with the parts in the position shown.

The advantages of my invention result from providing a single controller which acts to close the gas-supply both at an upper limit of pressure and at a lower limit of pressure. The device is simple, easily operated, and not liable to get out of order.

Many variations may be made in the form and arrangement of the parts without departing from my invention.

I claim—

1. In a controller for gas or fluid under pressure, an inlet-valve, a diaphragm, a stop for the valve, and connections between the diaphragm and stop arranged to move the

stop out of the path of the valve-rod on both an upper and lower limit of pressure; substantially as described.

2. In a controller for fluid under pressure, 5 an inlet-valve, means for exerting a closing pressure upon the valve, a latch for holding the valve open against the pressure, a diaphragm, and connections between the diaphragm and latch arranged to trip the latch 10 both at a higher and a lower limit of pressure; substantially as described.

3. In a controller, a casing containing a diaphragm, an inlet-valve having a stem, a diaphragm-rod having a stop for the stem, and a 15 spring arranged to act upon the rod against the pressure of the diaphragm, said diaphragm and spring being arranged under variations in pressure to move the rod out of the path of the valve-stem both at a higher 20 and at a lower limit of pressure; substantially as described.

4. In a controller, a casing having a diaphragm, an inlet-valve on one side of the diaphragm and having a spring-pressed stem, a 25 diaphragm-rod, a spring arranged to exert a pressure upon the rod when moved beyond a

certain limit, and a stop device on the rod in the path of the valve-stem; substantially as described.

5. In a gas regulator or controller, a diaphragm having a rod with a stop portion, a 30 spring, a washer normally pressed by the spring against a seat or shoulder, an abutment on the diaphragm-stem arranged to compress the spring when the stem is moved 35 beyond the predetermined distance, and a valve-stem controlled by the rod and actuating an inlet-valve; substantially as described.

6. In a controller for fluids under pressure, 40 a diaphragm having a rod, a stop on the rod, and a valve-stem engaged by said stop, the stop being arranged to release the rod after a predetermined movement in either direction; 45 substantially as described.

In testimony whereof I have hereunto set my hand.

THOMAS B. WYLIE.

Witnesses:

JOHN MILLER,
H. M. CORWIN.