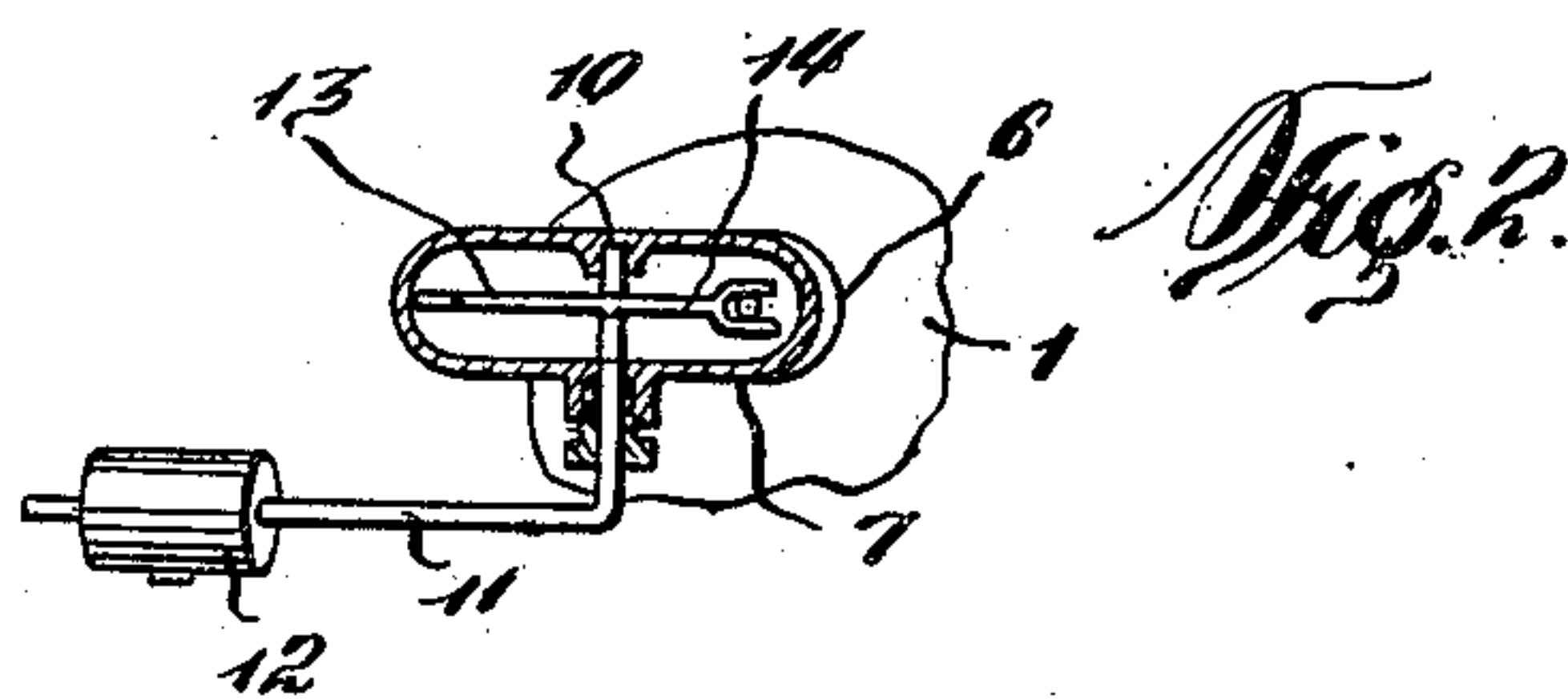
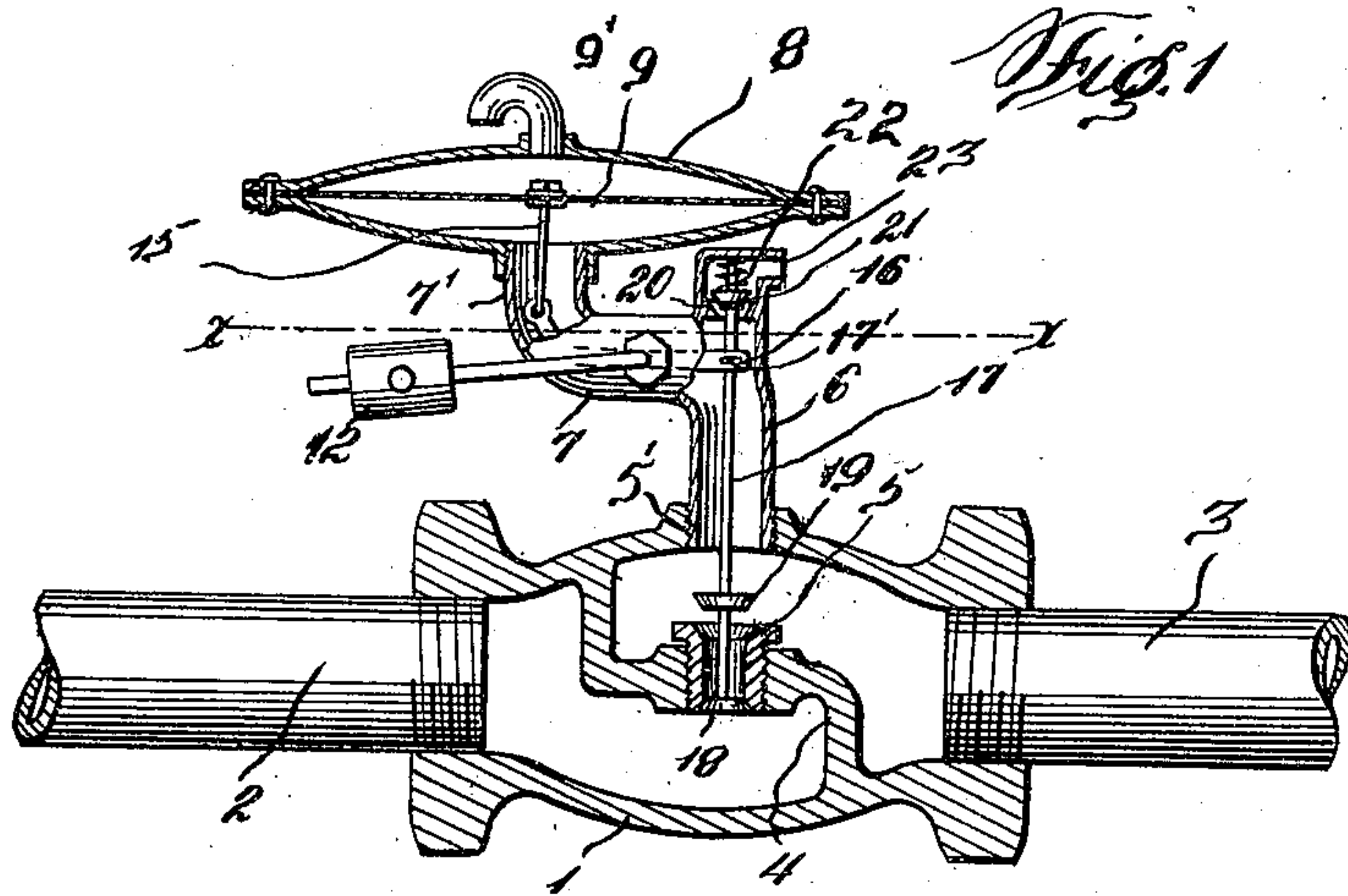


I. WRIGHT, JR.  
 AUTOMATIC REGULATOR.  
 APPLICATION FILED JUNE 7, 1910.

982,026.

Patented Jan. 17, 1911.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ISAAC WRIGHT, JR., OF INGOMAR, PENNSYLVANIA.

## AUTOMATIC REGULATOR.

982,026.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed June 7, 1910. Serial No. 565,507.

*To all whom it may concern:*

Be it known that I, ISAAC WRIGHT, JR., a citizen of the United States of America, residing at Ingomar, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Regulators, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in automatic regulators, and relates more particularly to that type of regulators that are employed for automatically regulating the flow of gas, and which act automatically to shut off the flow of gas in event of an undue increase in the pressure, or in event of an abnormal decrease in the pressure.

The object of the invention is to provide a device of this character of simple and efficient construction, and further provided with means for exhausting any entrapped gas which may remain when the valve is closed.

The invention resides in the novel construction, combination and arrangement of parts as will be hereinafter more specifically described, and then particularly claimed, and in describing the invention in detail, reference will be had to the accompanying drawings forming a part of this specification, and wherein like numerals will be employed to designate like parts throughout the different views of the drawings, in which:—

Figure 1, is a vertical sectional view, partly in side elevation, of a regulator constructed in accordance with my invention, and Fig. 2, is a horizontal sectional view taken on the line  $x-x$  of Fig. 1.

In the construction illustrated in Fig. 1, 1 designates a valve body of a common type, with which the inlet pipe 2, and outlet pipe 3 are connected, the valve body having the usual partition 4, provided with an opening in which is a removable valve seat 5.

The valve body carries and supports the regulator mechanism, being provided in its upper side with a port 5'. In this port is fitted the vertical leg 6 of a hollow member or pipe, having in addition to the said vertical leg 6, a horizontally-extending bend or portion 7, and at the outer end thereof an upwardly-extending portion or arm 7',

which latter supports the diaphragm casing 8, made in the usual manner of two sections secured together with the diaphragm 9 held therebetween. In order that there may be no compression of the air above the diaphragm 9, the upper section of the diaphragm casing is provided with a vent 9'.

Journaled in the laterally-extending portion 7 of this hollow member is a rod 10, one end of which projects beyond the portion 7 of the hollow member and bent at right angles to the journaled portion of the rod to form an arm 11, on which is mounted an adjustable weight 12. On the rod 10 within the portion 7 of the hollow member is a two-armed lever, the arm 13 of which projects toward the upwardly-extending portion 7' of the hollow member and is curved upwardly into said portion 7' of the hollow member, and connected to the diaphragm as by a link 15. The arm 14 of said lever projects in the opposite direction from the rod 10 and is bifurcated at its free end so as to straddle the valve or rod 17 which extends vertically in the leg 6 of the hollow member, the said arm 14 being loosely connected with said valve rod, as by pins on the valve rod which engage in slots 17' provided therefor in the arm 14. The said valve rod 17 carries valves 18 and 19, the former to engage the lower face of the valve seat 5, and the valve 19 to engage the upper face of said valve seat, the valves of course being so disposed on the rod that only one valve may be seated at one time. At the upper end of the vertical leg 6 of the hollow member is a valve seat 20, and the rod 17 carries a valve 21 which engages said seat when the valve rod is in a certain position, a spring 22 being interposed between the valve 21 and the top wall of the chamber in which said valve works, the said chamber being open to the atmosphere as at 23, so that any gas which has been entrapped by the seating of valve 18, may escape from the diaphragm chamber and the hollow member.

In operation, the weight 12 is moved on the arm 11 to such position as to cause a positioning of the valves 18, 19 at the desired position which will allow the required flow of gas from pipe 2 to outlet pipe 3. Should an increase in the pressure of the gas take place, such excess pressure tends to raise the diaphragm 9 and thereby rock the rod 10 through the connections between the diaphragm and the rod, causing arm 14 to move



the valve rod 17 downwardly so as to throttle the flow of gas and maintain the same at the desired pressure, but if the pressure be reduced, to shut off the flow of gas entirely, 5 in which latter case the counter-balance of the weight 12 being overcome, such weight tends to hold the valve closed, until the weight 12 is again manually operated. With the valve 18 entirely closed, the valve rod 17 10 has been moved upwardly so as to unseat valve 21 and allow any gas that may have been entrapped in the hollow member and diaphragm casing to be exhausted to the atmosphere. Should the normal pressure of 15 gas be reduced, the weight 12 immediately acts to raise valve rod 17 closed and lower valve 18.

Having thus fully described my invention, what I claim as new and desire to secure by 20 Letters Patent of the United States is:

In a regulator of the type described, the

combination with a valve body having valve seats, of a hollow member supported by said valve body and communicating with the interior thereof, a valve rod in said hollow 25 member having valves to engage the valve seats within said valve body, a diaphragm casing supported by said hollow member, a diaphragm therein, a rock shaft journaled in said hollow member, a two-armed lever car- 30 ried by said rock shaft having one arm connected with said diaphragm and the other arm loosely connected with said valve rod, and a valve-controlled exhaust port for said hollow member and diaphragm casing. 35

In testimony whereof I affix my signature in the presence of two witnesses.

ISAAC WRIGHT, JR.

Witnesses:

MAX H. SROLOVITZ,  
K. H. BUTLER.