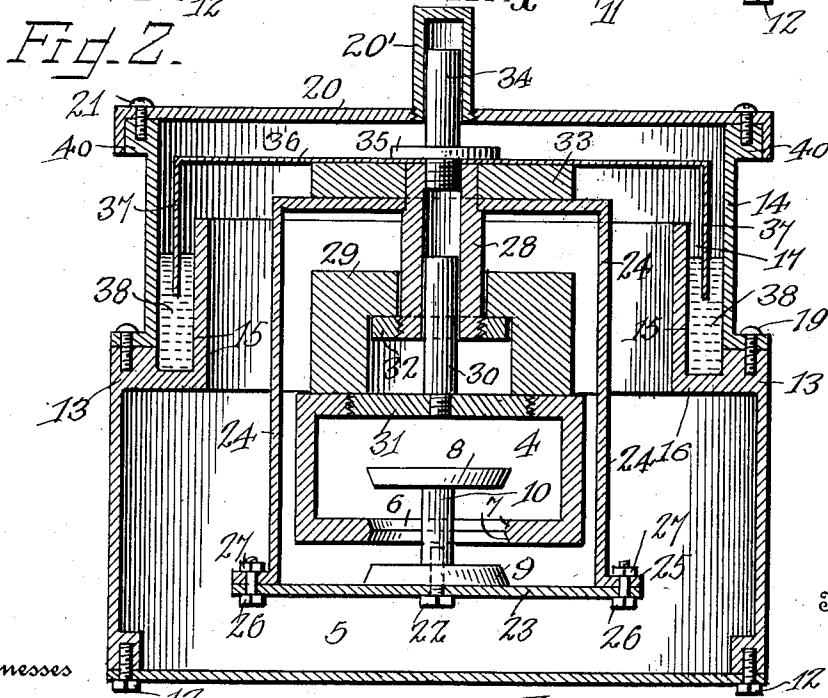
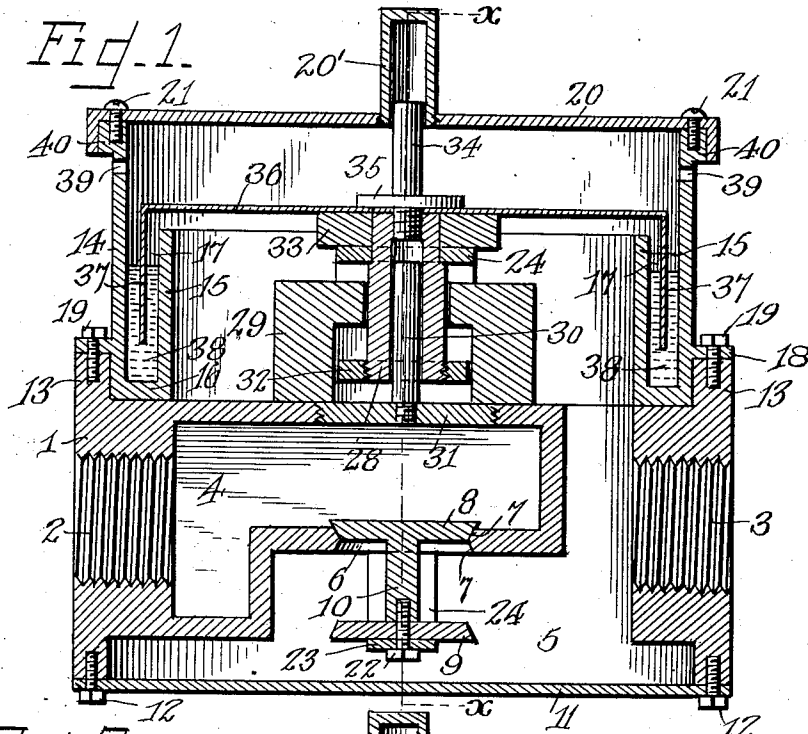


F. S. DRUMMOND.
GAS CONTROLLER AND SAFETY VALVE.
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1,021,581.

Patented Mar. 26, 1912.



Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

FRANZ S. DRUMMOND, OF BLAINE, WASHINGTON.

GAS-CONTROLLER AND SAFETY-VALVE.

1,021,581.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed April 8, 1911. Serial No. 619,814.

To all whom it may concern:

Be it known that I, FRANZ S. DRUMMOND, a citizen of the United States, residing at Blaine, in the county of Whatcom and State

of Washington, have invented certain new and useful Improvements in Gas-Controllers and Safety-Valves, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to devices for automatically controlling the flow of gas and regulating said flow by the variations in the pressure thereof arising from high or low pressure of the gas.

The invention has special reference to devices of this kind in which an equilibrium automatic valve apparatus is employed.

The invention has for its object to provide an improved governing apparatus of this kind for regulating and governing the flow of gas which will readily respond to the variation in pressure of the gas and which will be simple in construction and effective in operation.

In the accompanying drawings:—Figure 1 is a view in vertical section of the gas regulating apparatus constructed in accordance with this invention. Fig. 2 is a view in vertical section on the line X—X, Fig. 1, of the gas controlling apparatus.

The gas controlling apparatus constructed in accordance with this invention is formed with an upper and lower section, each preferably of a cylindrical shape, the lower section 1 being provided with a gas inlet port 2 and with an outlet port 3, each threaded for connection with a gas pipe. The section 1 is formed with the oblong chamber 4 with which the inlet port 2 communicates, said chamber opening into the chamber 5 in the bottom of the section 1 through a valve opening 6, which is provided with a pair of valve seats 7 on which are adapted to be alternately seated the valves 8 and 9, connected by a stem 10.

The section 1 of the apparatus, as shown, is preferably provided with a detachable bottom 11 secured in place by means of threaded bolts 12. The top of the section 1 is formed with an annular vertical flange 13.

Mounted on the top of the section 1 is a section 14 in the form of a cylindrical casing and formed with a vertical cylindrical inner wall 15 projecting upward from a horizontal annular portion 16 projecting inward from the lower edge of the casing 14,

the cylindrical wall 15 being spaced apart from the wall of the casing 14, and forming with the horizontal portion 16 and the wall of the casing 14 an annular chamber 17. The lower end of the casing 14 is seated on the top of the section 1 within the annular flange 13 and has a laterally projecting annular flange 18 which rests on top of the annular flange 13, and is secured thereto by threaded bolts 19. The walls of the casing 14 extend some little distance above the top of the wall 15, and are provided with a flanged cover 20 detachably secured in place by means of screws 21.

The valve 9 is detachably secured by a screw 22 to the lower cross bar 23 of a vertical rectangular frame 24, said cross bar 23 being detachably secured to the laterally projecting portions 25 of the frame 24 by bolts 26 and nuts 27. The rectangular frame 24 is mounted at its upper end on a vertical tubular stem 28 projecting and slidable through a weight 29, preferably in the form of a hollow cylindrical body and normally resting on the top of the chamber 4. The tubular stem 28 has projecting into the same a vertical pin 30 secured to a disk 31 in detachable threaded engagement with the top of the chamber 4. The lower end of the tubular stem 28 is provided with an annular flange 32 which is in detachable threaded engagement therewith. The flange 32 which is on the lower end of the tubular stem 28 is located in the hollow space within the weight 29 and serves when the tubular stem 28 is lifted, as hereinafter more particularly described, to engage the weight 29 and lift the same. Mounted on the upper end of the tubular stem 28 is a weight 33 which rests on the top of the frame 24.

Projecting into the upper end of the tubular stem 28 is the lower threaded end of a guide pin 34 having a disk-shaped flange 35 between which and the upper end of the tubular stem 28 is clamped a bell-shaped float 36 having its depending flange 37 projecting into mercury 38 in the annular chamber 17. The upper end of the guide pin 34 projects into and is slidable in a vertical socket projection 20' in detachable threaded engagement with the cover 20, the normal position of the parts being as shown in Fig. 1, with the valve 8 resting on its seat and the float in lower position, as shown.

By means of the valves 8 and 9, an excess-

sive pressure or dangerously low pressure is avoided. For example, when a steady pressure of two inches is provided and it is desired to cut off the gas, should the pressure
 5 fall below half an inch the weight of the gas bell with parts attached thereto is such that a half inch pressure will lift them until the flange 32 engages the upper part
 10 of the weight 29, which is the high pressure weight and is of such a weight that a pressure exceeding two inches will lift it. In the latter case, the high pressure valve 9 is brought to a partially or wholly closed position, thus restricting or entirely cutting off
 15 the flow of gas until the pressure at the outlet port has again dropped to two inches when the valve 9 will automatically open and admit more gas, thus maintaining a steady pressure of two inches on the side so
 20 long as that much or more pressure is supplied from the main. Should the pressure fall below the minimum of half an inch the valve 8 will be forced down and will shut off all gas. When closed by this low pressure valve, the returning pressure at the inlet
 25 port only tends to hold it more firmly in such closed position and no more gas will pass until the valve is opened manually.

What I claim is:—

30 In a gas regulator of the character described, a lower chamber and an upper chamber, the lower chamber being provided with an inlet port and an outlet port, and a partition between said ports having a
 35 double seated valve opening, a pair of

valves connected by a stem adapted to be alternately seated on one side or the other of said valve opening, an upper chamber having a central opening communicating with the lower chamber, and an annular
 40 chamber adapted to be filled with mercury, a vertically movable cylindrical stem having an annular flange at its lower end, a vertical guide pin projecting into said cylindrical chamber, a vertical socket in the
 45 top of said upper chamber, a vertical guide pin at the upper end of said cylindrical member projecting into and slidable in said socket, a bell float mounted on the upper
 50 end of said cylindrical member and having its depending edge projecting into said annular chamber, a weight mounted on said cylindrical member, a second weight normally resting on a fixed support and having
 55 a central opening through which said cylindrical member slidably projects, the flange at the lower end of said member being normally out of engagement with and adapted to be lifted with said cylindrical
 60 member into engagement with said weight, and a frame connecting said cylindrical member with said pair of valves in the lower chamber.

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

FRANZ S. DRUMMOND.

Witnesses:

J. W. G. MERRITT,
 C. W. LITTON.