

F. B. HAMLIN, B. C. SUITS & A. BRUNER.

GAS CONTROLLING VALVE.

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1,178,802.

Patented Apr. 11, 1916.

Fig. 1.

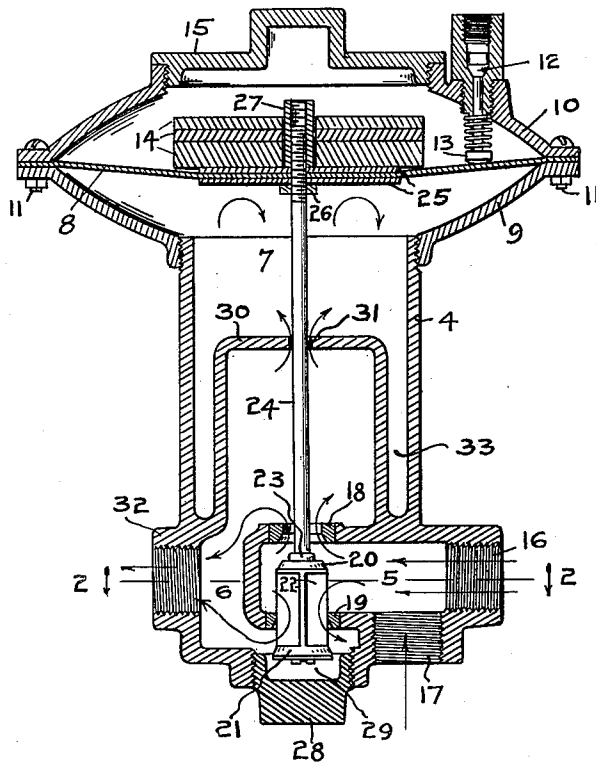
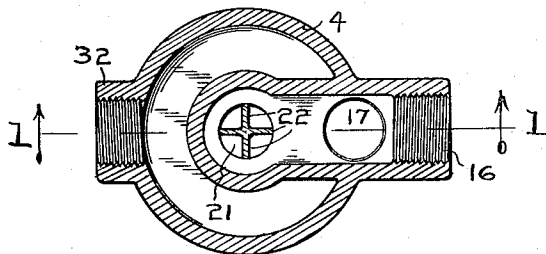


Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK B. HAMLIN, OF CHICAGO, ILLINOIS, AND BERT C. SUITS AND AUGUSTUS BRUNER, OF INDIANAPOLIS, INDIANA, ASSIGNORS TO THE A. BRUNER COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF INDIANA, AND FRANK B. HAMLIN, OF CHICAGO, ILLINOIS.

GAS-CONTROLLING VALVE.

1,178,802.

Specification of Letters Patent.

Patented Apr. 11, 1916.

Application filed November 27, 1914. Serial No. 874,214.

To all whom it may concern:

Be it known that we, FRANK B. HAMLIN, BERT C. SUITS, and AUGUSTUS BRUNER, citizens of the United States, said HAMLIN residing at Chicago, Illinois, and said SUITS and BRUNER residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Gas-Controlling Valves, of which the following is a specification.

The object of our invention is to automatically regulate the flow of gas into the house-service-pipe after the gas has been measured by passing through the meter, to maintain a steady pressure regardless of the varying number of lamps or other burners which may be in use and turned on or off from time to time.

The object is to simplify and cheapen the construction of such gas regulators and to make them less liable to get out of order.

We attain the above, and other objects which will hereinafter appear, by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a vertical sectional view of a gas-controlling valve using a diaphragm to support the gas-supply regulating valves, the view showing the interior arrangement of the device. Fig. 2 is a transverse section of same on the line 2—2 of Fig. 1.

Like characters of reference indicate like parts throughout the several views of the drawing.

The outer casing 4, preferably of cast-iron, has the gas inlet-compartment 5, the feeding-compartment 6, and diaphragm-compartment 7, which latter is expanded circumferentially of the axis of the body 4 at its upper portion to support a larger diaphragm 8 than would otherwise be possible to use. For convenience in manufacture, the expanded portion of the diaphragm-compartment is cast separately and is here shown as screwed upon the upper threaded end of the cylindrical body 4. It is also formed in two horizontally separable members 9 and 10, having flanged edges between which the diaphragm 8 is assembled and held by bolts 11 which also secure the members 9 and 10 together. The diaphragm 8 forms a gas-tight closure for the upper end of the outer casing or

body 4. An air-vent into the interior of the upper member 10 is provided and is regulated by a spring closed valve 12. The latter has a stem terminating in a knob 13 which contacts the diaphragm 8 whereby the latter will raise and open the valve 12 when said diaphragm is raised by gas pressure below. The depression of the diaphragm is occasioned by weights 14 which may be varied to suit the requirements and an opening for access to the interior of the member 10 is provided in the latter and is here shown as closed by a threaded cover 15 which screws into the correspondingly screw-threaded opening in said member 10. Should the diaphragm 8 break or leak the weights 14 will depress it, thereby releasing the pressure on the stem and valve 12, permitting the valve to be closed by its spring. This keeps the gas leaking past the diaphragm from escaping from the upper compartment of the diaphragm housing and is an important feature of our invention.

The inlet-compartment 5 has a horizontal opening 16 and a vertical opening 17, each formed with a standard pipe-thread. The two openings are to enable horizontal or vertical connection, according to which may be the most convenient to be made, and the hole not used for such connection is closed by means of a pipe-plug. The walls of the inlet-compartment 5 extend horizontally into the shell and have upper and lower gas-supply openings, in the upper of which a bushing 18 is secured, and in the lower of which a bushing 19 is similarly secured. The bushing 18 has a tapering valve-seat, and the bushing 19 a similarly shaped valve-seat of larger diameter. Both of said valve-seats taper upwardly and receive correspondingly upwardly tapering valves 20 and 21. The valves 20 and 21 are preferably formed on an internal metal casting comprising a body portion connecting the two valves having a plurality of radial plates 22. The vertical edges of the plates 22 have a sliding bearing through the valve-opening in the bushing 19 against said bushing whereby the valves are directed to their seats. A boss 23 at the upper end has a screw-threaded opening which receives a stem 24. The upper end of the stem 24 is screw-threaded and passes through the diaphragm 8 and sup-

porting plates 25 for said diaphragm, and a given position is retained by a lock-nut 26 and locking-sleeve 27. The weights 14 rest upon the upper plate 25 and have a central hole by which they are assembled around the sleeve 27. The stem 24 and valves are assembled from below through an opening in the bottom of the casing which is subsequently closed by a screw-plug 28, a suitable recess 29 being formed in its inner portion to prevent interference by the accumulation of naphthalene. A partition-wall 30, forming part of the shell casting, divides compartments 5 and 6 and the small opening 31 in its center affords passage for the valve-stem 24, and also for the gas.

The side of the shell 4 adjacent to the feeding compartment 6 and outwardly thereof is provided with a boss 32 which is threaded to receive a service-pipe through which the gas is fed to a plurality of stove, lamp or other burners.

The operation of our device is as follows: Gas is admitted into inlet-compartment 5 passing thence into feeding-compartment 6 through valve openings for valves 20 and 21. From compartment 6 it enters the service-pipe from boss 32. The increased pressure in compartment 6 when no gas is drawn from it increases and passing through the opening 31 enters the compartment 7 and lifts the diaphragm 8, (or the float 34, as the case may be,) raising same and with it the connected valves 20 and 21, eventually seating them if the pressure is great enough, which cuts off the supply of gas and stops the action. As soon as the pressure is diminished by gas being drawn to supply burners from the compartment 6 the pressure is reduced and the diaphragm (or float) sinks by reason of the weights thereby lowering the valves and opening the passageways past them in proportion to the gas drawn of to supply the burners. An automatic fluctuation of the

valves in keeping with the number of lamp or stove burners in use will occur, and the supply and pressure of gas will thus be regulated.

Having thus fully described our invention, what we claim as new and wish to secure by Letters Patent of the United States, is—

In a gas-controlling valve, the combination of a body comprising an outlet-chamber and an inlet-chamber having walls extending into the outlet-chamber, said walls having two vertically alined valve-openings discharging into the outlet-chamber, a valve-stem, a diaphragm-chamber at the upper end of the body communicating with the interior of the latter, a gas-tight diaphragm partition separating said diaphragm-chamber into upper and lower compartments, said diaphragm being connected with the valve-stem, said upper compartment having a relief opening, a valve controlling said relief opening, said valve having a stem resting upon the diaphragm whereby the valve is opened by the raising of the diaphragm, a spring to close the valve, two other tapering valves both mounted on said first stem, said valves being connected by integral radial plates having sliding edge-contact with the wall of the lower one of said valve-openings in the wall of the inlet-chamber, and a screw-plug in said body alined with said last valves, said plug being recessed for the clearance of said lower valve.

In witness whereof, we have hereunto set our hands and seals at Indianapolis, Indiana, this 24th day of October, A. D. one thousand nine hundred and fourteen.

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BERT C. SUITS. [L. S.]
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Witnesses:

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