

(No Model.)

C. RUPRECHT.
GAS PRESSURE REGULATOR.

No. 348,172.

Patented Aug. 24, 1886.

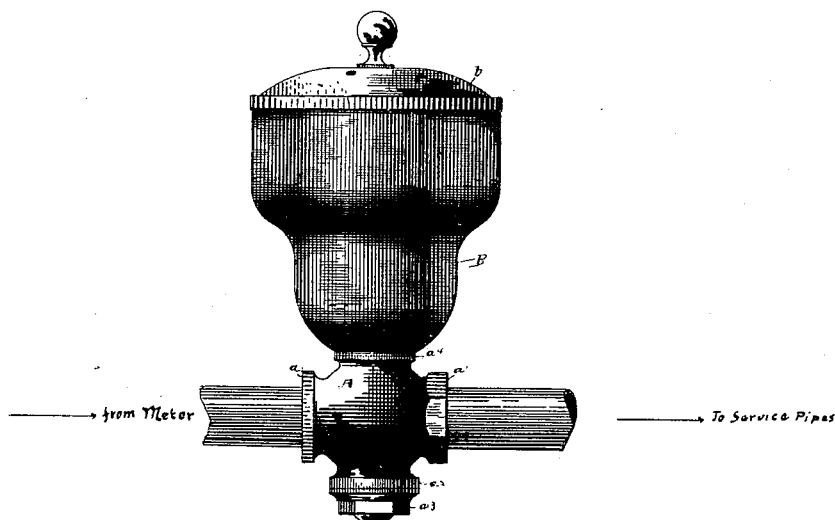


Fig. 1.

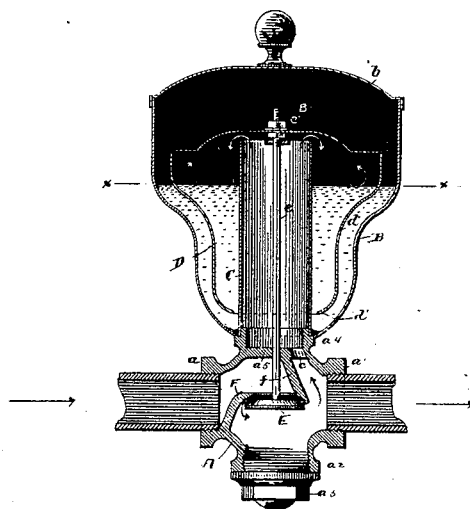


Fig. 2.

WITNESSES

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CHARLES RUPRECHT, OF CLEVELAND, OHIO.

GAS-PRESSURE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 343,172, dated August 24, 1886.

Application filed July 3, 1886. Serial No. 207,061. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RUPRECHT, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful
5 Improvements in Gas-Pressure Regulators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the
10 same.

My invention relates to improvements in gas-pressure regulators adapted to be used between the gas-meter and service-pipe to regulate and give the uniform desired pressure of gas at the
15 burner; and it consists in certain features of construction, and in combination of parts, hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved gas-pressure
20 regulator. Fig. 2 is an elevation in section through the center of the regulator.

A represents the valve-casing, having four nozzles arranged in the same plane. To the nozzle *a* is attached the pipe leading to the
25 meter. The nozzle *a'* is attached to the service-pipe. Through the nozzle *a''* access is had to the casing A, for facing the valve-seat and inserting the valve, &c. This nozzle is closed with a plug, *a'''*. The nozzle *a'* has attached the casing B, in which the float D operates.
30 This latter nozzle has a head or diaphragm, *a''*, cast in. The casing B has a removable cover, *b*, at the top, and at the bottom is soldered or otherwise secured to the lower end of the cylindrical open-ended tube C, and the two are
35 soldered or otherwise attached to the nozzle *a'*.

F is a diaphragm cast in the casing A, in which diaphragm is seated the valve E. This diaphragm is substantially the same as had in
40 ordinary globe-valves, except that the part *f* slopes upward and backward to near the center of the head *a''*, leaving room for the orifice *c* on the side of the diaphragm next the service-pipe, said orifice opening above into the
45 tube C. On the other side of the part *f* of the diaphragm F is a small orifice in the center of the head *a''*, through which orifice passes the stem *e* of the valve E, the latter opening downward. The upper end of the stem *e* is attached
50 to the center of the float usually by jam-nuts

e', arranged above and below the float, with packing between to form a tight joint.

The chamber B' of the casing B, in which operates the float, is filled with glycerine or other suitable fluid for sealing the float up to
55 about the line *x x*. The casing B and the float are preferably of about the form shown in Fig. 2, the curves *d* and *d'* performing important functions—to wit, they retard quick vertical movements of the float through the liquid and
60 keep the valve steady. Heretofore a double or two-faced valve was considered necessary, involving an arrangement of the internal diaphragm that greatly retarded the flow of gas from the meter to the service-pipe. With my
65 improved construction, by means of the sloping part *f* of the diaphragm, the arrangement of parts is such that a single valve is used, and the flow of gas to and from the valve is not obstructed.
70

In operating the device, when there is little or no pressure of gas, the valve is depressed by gravity and remains open, the gas passing unobstructed from the meter to the service-pipe and through the orifice *c* up under the
75 float. When the maximum pressure desired is reached, the pressure under the float raises the latter and closes the valve. Now, if one or more burners are lighted, the pressure in the service-pipe is of course reduced, and as a
80 service-pipe by means of the orifice *c* is in open relation with the under side of the float the pressure that buoys the float is reduced, when the latter descends and opens the valve more or less, according to the reduction of pressure
85 in the service-pipe and under the float. The opening of the valve of course admits gas to supply the deficiency caused by consumption at the burners. In this manner the pressure of gas at the burner is regulated and kept uniform regardless of the pressure at the meter.
90 The aggregate weight of the float, valve, and valve-stem as compared with the area in cross-section of the float at the largest part thereof is such as to give the desired pressure. If a
95 greater pressure is desired, more weight is added to the float.

My improved device, on account of its single valve and the simplicity of its general construction, can be made at a greatly reduced
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initial cost, as compared with the gas-pressure regulators heretofore in use, and will be found reliable and desirable in every respect.

What I claim is—

- 5 1. In a gas-pressure regulator, the combination, with a single-faced valve and a float for operating the valve, arranged substantially as indicated, of a diaphragm in the valve-casing forming a seat for the valve, said diaphragm
10 on the side next the service-pipe being made at an acute angle, and joining the upper wall of the casing near the center thereof, substantially as set forth.
- 15 2. In a gas-pressure regulator, the combination, with a valve and float, arranged substantially as indicated, of a diaphragm in the valve-casing, forming a seat for the valve, and an opening through the top wall of the valve-casing leading under the float, said diaphragm being
20 made to incline upward and toward the induction-opening, leaving the said orifice on the service-pipe side of the diaphragm, substantially as set forth.
3. In a gas-pressure regulator, the combina-

tion, with a single-faced valve and a float con- 25
nected with the valve for operating the same, said float being located in a suitable chamber and fluid-sealed, of a valve-casing and diaphragm, arranged substantially as shown, and an orifice in the valve-casing leading under 30
the float and discharging on the side of the diaphragm next the service-pipe, the parts being arranged substantially as described.

4. In a gas-pressure regulator, the combination, with a valve-casing, valve, diaphragm, 35
and float, arranged substantially as indicated, of the head *a*^b, arranged between the valve-chamber and the float-chamber, said head having an orifice, *c*, and an orifice for the passage of the valve-stem, substantially as set forth. 40

In testimony whereof I sign this specification, in the presence of two witnesses, this 19th day of June, 1886.

CHARLES RUPRECHT.

Witnesses:

CHAS. H. DORER,
ALBERT E. LYNCH.