(No Model.)

L. P. BLAIR.

GAS GOVERNOR.

No. 374,445. Patented Dec. 6, 1887.

Fig. 1.

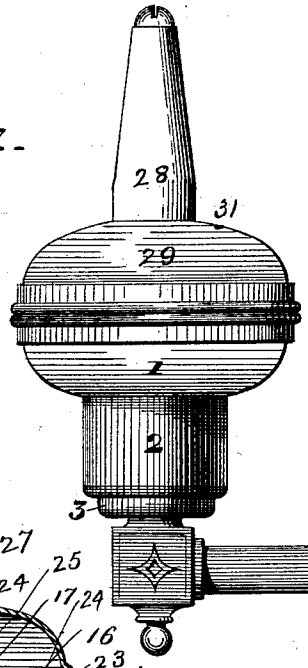


Fig. 2.

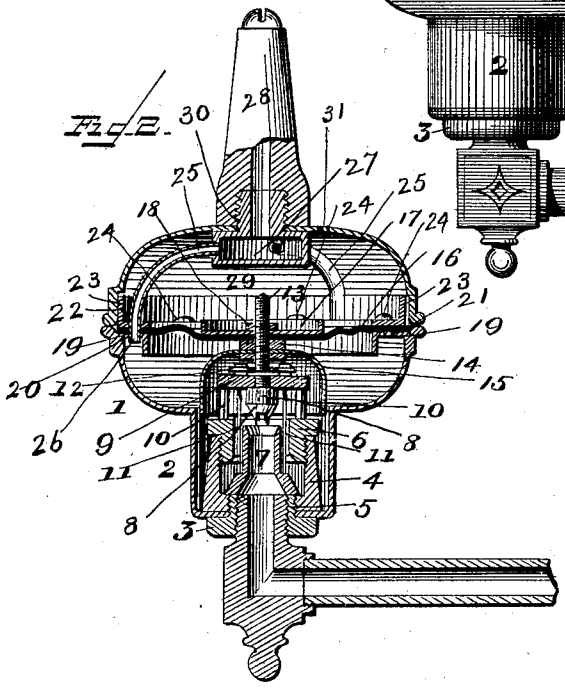


Fig. 3.

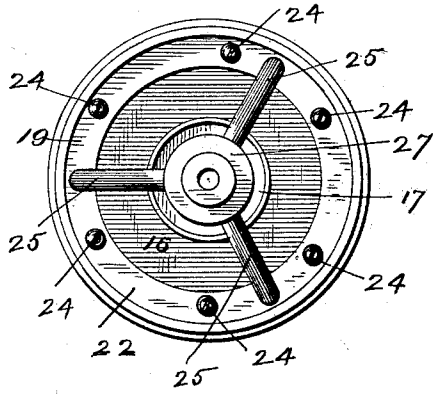
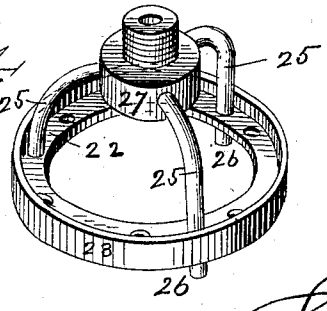


Fig. 4.



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UNITED STATES PATENT OFFICE.

LLEWELLYN P. BLAIR, OF BALTIMORE, MARYLAND.

GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 374,445, dated December 6, 1887.

Application filed May 5, 1887. Serial No. 237,264. (No model.)

To all whom it may concern:

Be it known that I, LLEWELLYN P. BLAIR, a citizen of the United States, and a resident of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Gas-Governors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved gas governor or regulator, showing it applied to a burner. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a top plan view of the device with the top part of the casing removed, and Fig. 4 is a perspective view of the ring securing the diaphragm and its tubes and tap removed from the casing.

Similar numerals of reference indicate corresponding parts in all the figures.

My invention has relation to that class of gas regulators or governors in which the gas passing through the device will act upon a diaphragm provided with suitable means for weighting it or for regulating its resistance, which diaphragm is suitably connected to a valve regulating the quantity of gas passing through the device, and it contemplates certain improvements upon the governors or regulators for which Letters Patent Nos. 226,479 and 251,822 were, respectively, granted to me on on the 13th day of April, 1880, and the 3d day of January, 1882; and it consists to that end in the improved construction and combination of parts of such a regulator or governor, as hereinafter more fully described and claimed.

In the accompanying drawings, the numeral 1 indicates the lower portion of the casing, which is of substantially the same construction as the casing shown in the two former patents, and which is formed with the cylindrical lower end, 2, which is provided with the internally-screw-threaded collar 3, by means of which the casing may be secured to the tap of a fixture.

The inlet-tube 4 is secured with its lower internally-screw-threaded end upon a screw-threaded tap, 5, projecting from the collar, and this tube is of a truncate conical shape and has a valve-seat, 6, screwed into its upper end.

The lower portion of the tubular double-seated valve 7 plays against this seat in the same manner as in the two former patents, and the upper end of the valve plays against the adjustable conical seat 8, which is secured in the plate 9, supported by the rods 10, similar to the parts already described in the former patents. The valve carries the vertical rods 11 in the same manner as the former valve, and supports the small plate 12 at the upper ends of the rods, and a screw-threaded rod, 13, projects from this plate and has a collar, 14, screwed upon its lower end.

A bell 15, is secured upon the screw above the collar or washer, and this bell is of the same shape and has the same function as the bell in the former patents, with the exception of its sides, which are more cylindrical than the sides of the former bells, the sides of this bell being parallel with the sides of the cylindrical lower portion of the casing and fitting nearly against the same, rendering the operation of the bell and valve very sensitive to any change in the pressure of the gas, and causing their play to be very true and exact.

The diaphragm 16 is secured to the screw above the bell, and is clamped toward the top of the bell by means of the pan 17, which serves to hold weights and to cause the diaphragm to rise uniformly, and by a nut or washer, 18, which clamps the pan against the diaphragm.

The lower portion of the casing is provided with an annular shoulder, 19, upon the inner side of its upper edge, and this shoulder is provided with a number of perforations, 20, passing entirely through the shoulder, and with screw-threaded perforations 21, and a ring, 22, having an upwardly-projecting flange, 23, upon its outer side, fits upon the shoulder and is secured to the same, clamping the diaphragm between it and the shoulder by means of screws 24, inserted through the ring and into the threaded perforations. This ring is provided with a number of curved tubes, 25, having their lower ends, 26, projecting through the ring and fitting into the smooth perfora-

tions of the shoulder, and the upper ends of these tubes are united in a tap, 27, to which the burner 28 may be secured.

The top portion of the casing, which is numbered 29, is rounded and provided with a central perforation, 30, with which it fits upon the tap, and with a small air-inlet, 31, and the lower edge of this top fits upon the flange of the ring in the same manner as the top of the regulator or governor described in the first patent, the top being held in place by means of the burner upon the tap, the lower end of the burner clamping the perforated part of the top between it and the shoulder of the tap.

It will now be seen that when the device is secured upon the tap of a fixture and the burner is secured upon the tap of the device, and the gas is turned on, all irregularities in the pressure of the gas will cause the diaphragm to either rise or fall, closing or opening the annular space between the lower valve-seat and the lower end of the double seated valve, admitting the gas with greater or less ease, as the pressure is decreased or increased, so that the same quantity of gas will at all times be admitted.

The pressure of the diaphragm may be regulated by weighting the pan upon the same with small shot or similar weights, and the play of the valve may be regulated by adjusting the upper valve-seat in exactly the same manner as the same adjustments were performed in the former devices, with the exception of the weights being placed in the pan in place of in a special receptacle; but, on account of the bell having the cylindrical sides, and thus playing perfectly vertical in the cylindrical lower end of the casing, any inequality in the distribution of the weights in the pan will not affect the play of the valve.

It will be seen that the ring, which in the first patent only served for the purpose of securing the edge of the diaphragm, will in this device serve as well for the said purpose as for the purpose of securing the tubes which convey the gas passing through the device to the tap and subsequently to the burner.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a gas-governor, the combination of the casing having its lower portion provided with the regulating-valve and with a shoulder formed with perforations, a diaphragm having its edges resting upon the shoulder, and having suitable connection to the regulating-valve, and a ring secured upon the shoulder, clamping the edge of the diaphragm, and having tubes passing through it into the perforations in the shoulder and converging into a tap at the upper ends, as and for the purpose shown and set forth.

2. In a gas-governor, the combination of a casing, the lower portion of which is cylindrical, an interiorly and exteriorly screw-threaded collar, an inlet-tube secured thereto, a valve-seat secured to the upper end of the inlet-tube, a plate, rods secured to the plate and to the valve-seat, an adjustable conical seat secured to the plate, a double-seated valve within the inlet-tube, a diaphragm secured to the casing, a bell secured to the diaphragm, and rods for securing the valve to the diaphragm, and tubes for conveying the gas from the lower portion of the casing to the burner, as and for the purpose set forth.

3. In a gas-governor, the combination of a casing having an annular shoulder inside of its upper edge formed with smooth perforations through it, and having a double valve-seat in its lower end, a diaphragm having its edges resting upon the shoulder, and having a regulating-valve secured to it, playing upon the valve-seats, a ring secured by screws to the shoulder, and having tubes secured with their lower ends in it, projecting through it into the perforations in the shoulder, and having their upper ends converging into a shouldered tap, and a top fitting upon an upwardly-projecting flange of the ring, and having an air-inlet aperture and a central aperture for the passage of the tap, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

LLEWELLYN P. BLAIR.

Witnesses:
HENRY F. GAREY,
LINDLEY M. HUGGINS.