C. L. HERRING.

Gas Regulator.

No. 31,168. Patented Jan. 22, 1861.

Fig. 2.

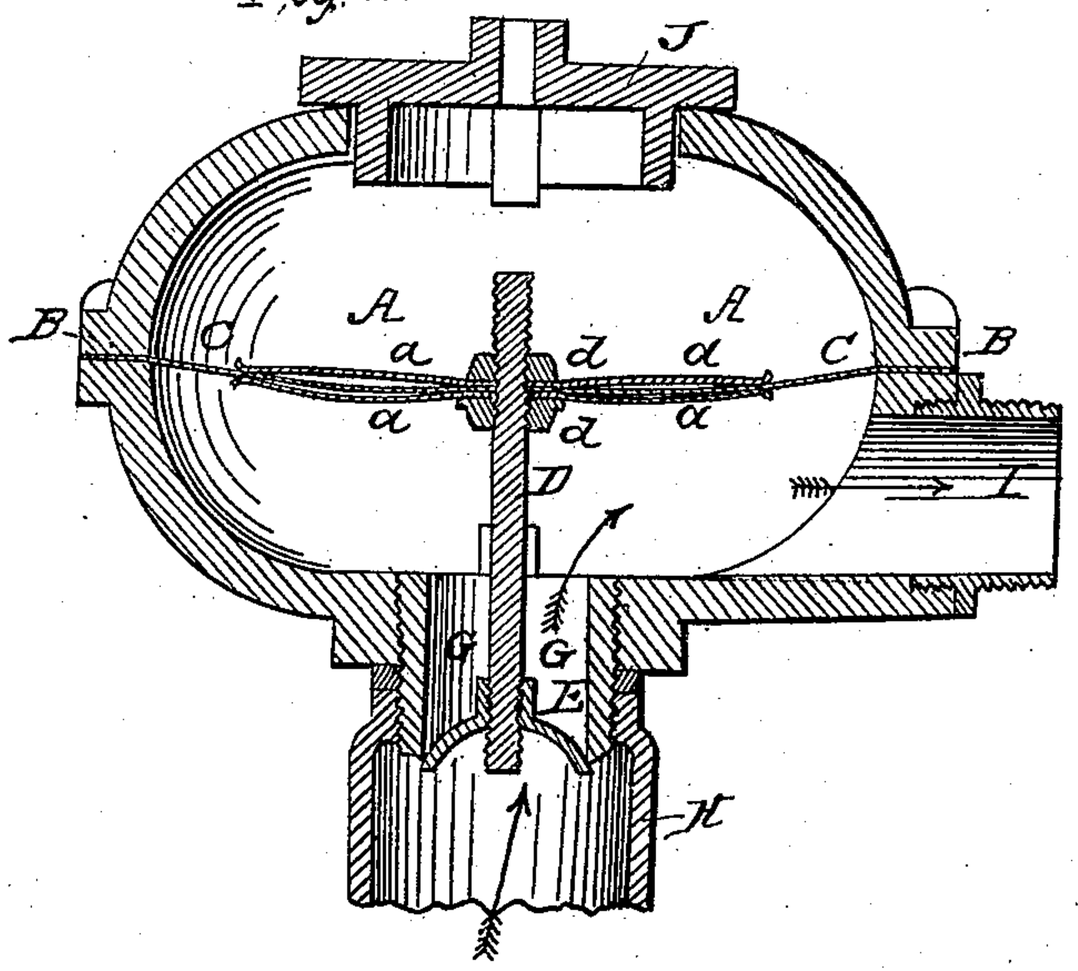
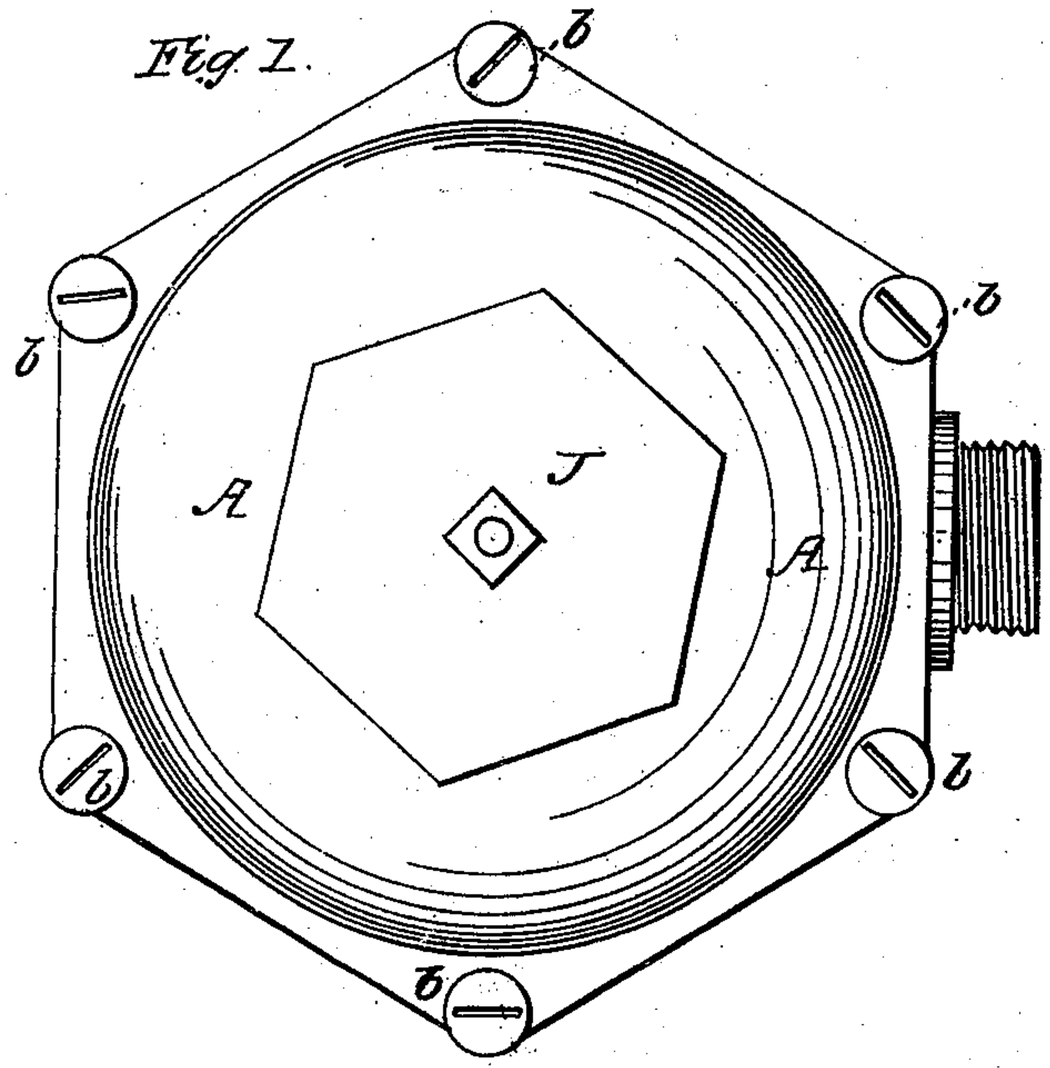


Fig. 1.



Witnesses

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UNITED STATES PATENT OFFICE.

C. L. HERRING, OF ST. LOUIS, MISSOURI.

GAS-REGULATOR.

Specification of Letters Patent No. 31,168, dated January 22, 1861.

To all whom it may concern:

Be it known that I, CALVIN L. HERRING, of the city and county of St. Louis and State of Missouri, have invented a new and useful Improvement in Gas-Regulators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making part of this specification, in which—

Figure 2 is a top view and Fig. 1 a vertical section through the center, thereof.

My invention consists in the application of thin curved metal plates to the flexible diaphragm of a gas regulator so as to impart to the said diaphragm the sensibility incident to the application of plates thereto, without impairing the extent of its action or its flexibility as in the case of making the plates flat and clamping them close to the diaphragm.

To enable any one skilled in the arts to which my invention appertains to make and use the same, I will proceed to describe the construction and operation thereof.

Like letters represent like parts of the different figures of the drawing annexed.

The chamber of the regulator to which my invention is here applied, is shown upon the drawing by A. It is made in two parts, which are joined together at B. Across the said chamber the flexible diaphragm *c* is arranged, and secured between the two parts of the chamber at B. In the center of the said diaphragm a hole is made through which the valve end D is made to pass, and on each side of the diaphragm the two curved plates *a a* are arranged, and secured by means of jam nuts *d d*, which also secure the valve stem D to the diaphragm. To the lower end of the stem D the valve F is fixed, so as to close the orifice in the receiving pipe H. This valve F opens and closes as the pressure of the gas is increased or diminished, against the under side of the diaphragm and thus regulates the flame of gas to the burners.

The educting pipe is shown at I to which any number of burners may be applied, and when one or more of the burners are shut off the pressure of gas will be increased against the under side of the diaphragm and cause the valve F partially to close and diminish the flow of gas to the chamber and burners.

Now suppose the valve F to be attached to the diaphragm without the plates *a a*, then the diaphragm would fall to the curve represented by the line *v* in red, and upon the admission of gas it would "puff" up the diaphragm around the stem as represented by the red lines *v'* thus causing a slow, irregular uncertain action of the regulating valve, and if the plates were made flat and applied so as to "hug" the diaphragm, then when the gas raised the valve the diaphragm would have to crimp (as shown by the red serpentine line *x*) around the periphery of the plates which would make it uneasy and uncertain in its action. But the objections attending the use of a flat plate and the use of the diaphragm without any plate, are avoided by the use of curved plates, such as are represented in the drawings but they must be applied so that their periphery will scarcely touch the diaphragm, so that in raising the diaphragm can curl or fold between the plates, as well as around the outside of it. By this construction and arrangement of the plates, we have all the advantages, without any of the objections that have hitherto attended their use in this connection. We have a steady certain action of the regulating valve, and consequently no flickering of the light and no danger of its being extinguished by a sudden movement of the diaphragm and valve.

What I claim therefore as my invention and desire to secure by Letters Patent is—

The application of the curved plates *a a* to the flexible diaphragm *c*, substantially as described for the purpose specified.

C. L. HERRING.

Witnesses:
C. E. GRAY,
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