(No Model.)

C. A. JAMISON.

GAS PRESSURE REGULATOR.

No. 428,843. Patented May 27, 1890.

Fig. 1.

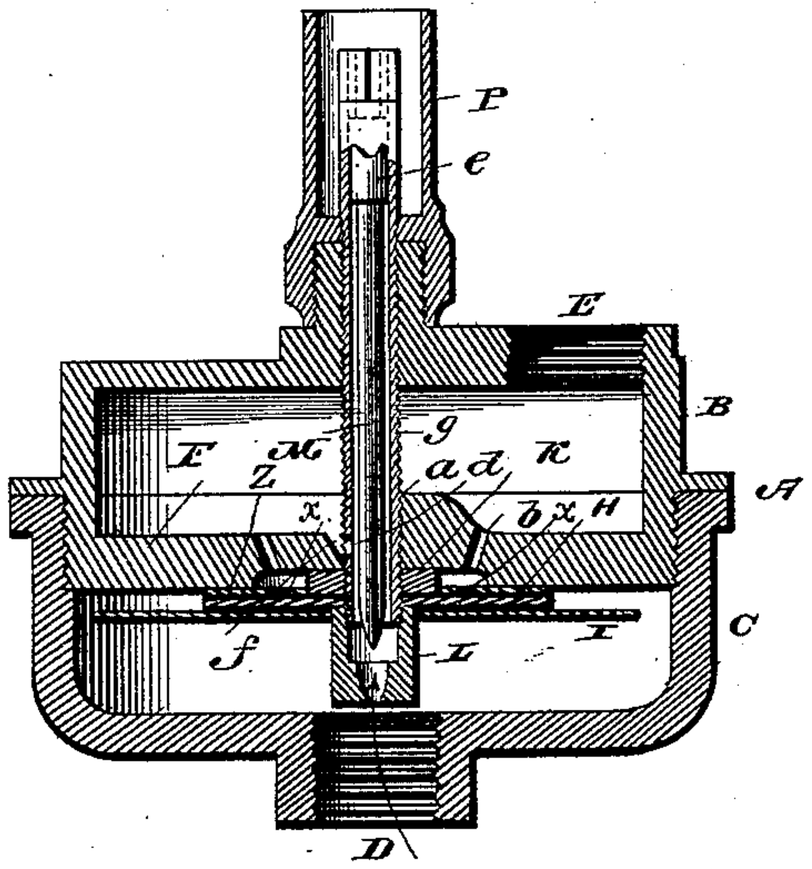


Fig. 2.

Fig. 3.

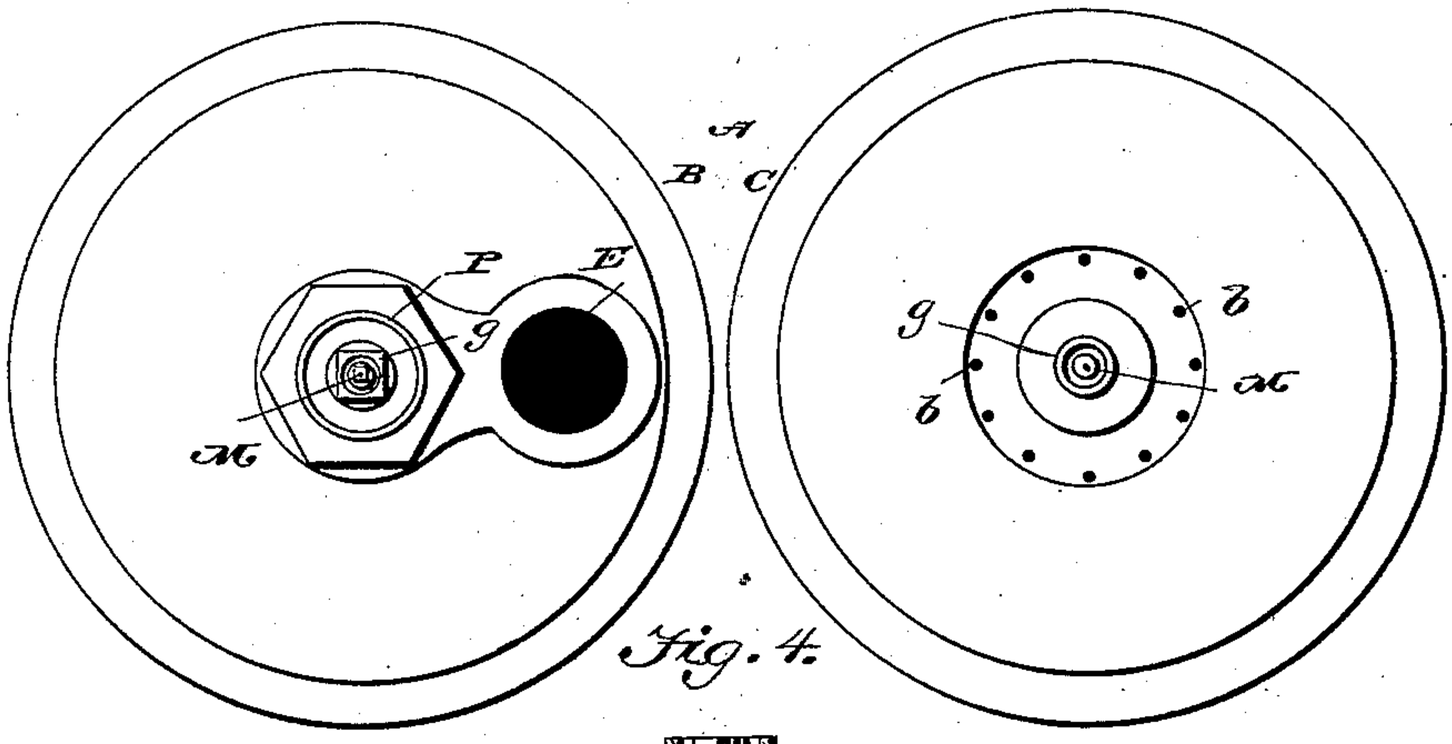
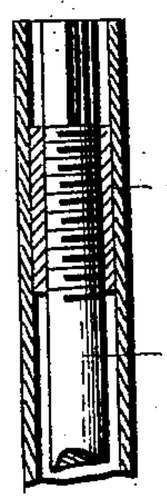


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

CURTIS A. JAMISON, OF KENDALL CREEK, PENNSYLVANIA.

GAS-PRESSURE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 428,843, dated May 27, 1890.

Application filed August 13, 1889. Serial No. 320,630. (No model.)

To all whom it may concern:

Be it known that I, CURTIS A. JAMISON, a citizen of the United States, residing at Kendall Creek, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Pressure Gas-Valve Regulators; and I do 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 appertains to make and use the same.

This invention has relation to a low-pressure gas-regulator, and the novelty will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical central sectional view of my improved device. Fig. 2 is a plan view of the same. Fig. 3 is an inverted plan view of the upper section of the casing to show the perforated disk or diaphragm, and Fig. 4 is a sectional detail view of the internal tube and valve-rod.

Referring by letter to the said drawings, A indicates the casing, which is composed of an upper and lower section B C, the lower section having an inlet-aperture D and the upper section an outlet-aperture E, said sections being united by a threaded joint, as shown. The upper section B is provided with a horizontal disk or diaphragm F, having a central aperture *a* and a circular series of perforations *b* surrounding said aperture. The central aperture *a* is internally threaded to receive an externally-threaded tube *g*, which forms a central passage for the gas when the circular series of apertures *b* have been closed, as will be presently explained. Arranged near the lower end of this tube *g* and beneath the disk or diaphragm F is a hard-rubber disk H, and beneath the hard-rubber disk a disk I, of mica or other suitable material, which are designed to close the apertures *b* of said disk. These disks of hard rubber and mica are secured to the threaded tube *g* by means of a metallic disk K, arranged above them, and a valve-nut L beneath them. By this construction it will be seen that by turning the tube *g* with a wrench or key provided for the purpose the disks may be moved to and from the diaphragm F, so as to cover and uncover the openings *b* therein.

The tube *g* is provided near its lower end and above the disk K thereon with a lateral aperture *d*, which is designed to communicate with the upper chamber or interior of the section B. This tube is, furthermore, provided at a suitable point from its upper end with a reduced portion *e*, which is internally threaded. This reduced portion may be formed by fixing a ring therein, or it may be made an integral part of the tube, the object being to provide a threaded seat for the valve-rod M, as better shown in Fig. 4 of the drawings. This valve-rod M, which has its upper end formed in a key-seat, and has a threaded external portion to take into the threads in the reduced portion of the tube *g*, passes down through the tube, and has its lower end tapering, as shown, so as to enter a tapering aperture in the lower end of the valve-nut L. This valve-nut L, having the tapering aperture or seat to receive the lower end of the valve-rod, is internally threaded and screwed upon the lower end of the externally-threaded tube *g*, so as to serve the additional function of securing the mica and hard-rubber disks to said tube.

In practice a globe-valve may be employed at the inlet-opening B, and the outlet-opening E is internally threaded to receive a pipe or other means for conveying the gas to a stove or furnace. The disk or diaphragm F is cut away near its central aperture so as to form a passage *f*, leading into the upper chamber of the regulator.

The key-seats of the tube *g*, and also the valve-rod, are protected by a socket P, adapted to permit the insertion of a key or wrench upon the same.

In operation, when a slow fire is wanted and the pressure is great in the line-pipe, the pressure, acting upon the mica and hard-rubber disks, will close the same against the perforations in the disk or diaphragm F. The operator, by turning the valve-rod, may then admit the gas in a desired quantity through the aperture in the nut L and from the tube *g* through the aperture *d* into the upper chamber of the regulator, from whence it may pass out through the opening E to the stove or furnace. As the pressure decreases in the line-pipe, and consequently upon the mica and hard-rubber disks, the gas will be permitted to pass through the apertures *b* in the disk or

diaphragm F into the upper chamber of the regulator, and thence to the stove or furnace. The passage of gas through the aperture in the nut L, and consequently through the pipe *g*, may be regulated by the valve-rods M, while the passage through the apertures *b* in the disk or diaphragm F may be positively regulated by manipulating the pipe *g* with a key or ring. When the rubber and mica disks are closing the apertures *b* by a pressure of gas beneath them, a part of the pressure may be shut off by the globe-valve employed at the inlet-opening.

Z is a rubber disk, preferably vulcanized rubber, and is provided with a centrally-located opening surrounded by a number of holes or perforations *x*, corresponding with and in alignment with the holes *b*. This disk is secured to the diaphragm F by cement, glue, or other adhesive substance that will hold it firmly in place against the diaphragm.

Having described my invention, what I claim is—

1. A low-pressure gas-valve regulator having a perforated disk or diaphragm arranged between the inlet and outlet openings, in combination with a tube carrying one or more flexible disks adapted to cover said openings, a valve-rod arranged in said tube, and a valve-nut arranged on the lower end of the tube and having an aperture or seat adapted to be closed by the valve-rod, substantially as specified.

2. A low-pressure gas-valve regulator having a perforated disk or diaphragm arranged between the inlet and outlet openings, in combination with an externally-threaded tube seated in the perforated disk and having a lateral aperture, one or more flexible disks carried by said tube, a valve-rod arranged in the tube, and a valve-nut provided with a tapering aperture and arranged in the lower end of said tube, substantially as specified.

3. A low-pressure gas-valve regulator having a perforated disk or diaphragm arranged between the inlet and outlet openings, an externally-threaded rod or tube passing through said disk, one or more flexible disks arranged on the lower end of said tube, a disk above said flexible disk, and a nut beneath the same and securing the flexible disk to the tube, the nut having an inlet-aperture, substantially as specified.

4. The combination, in a low-pressure gas-regulator having a perforated disk or diaphragm, of a rubber covering having a central opening surrounded by perforations in alignment with the perforations *b* of the diaphragm, and an imperforated disk backing the perforated one, substantially as specified.

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

CURTIS A. JAMISON.

Witnesses:

G. W. CROOK,

T. B. CROOK.