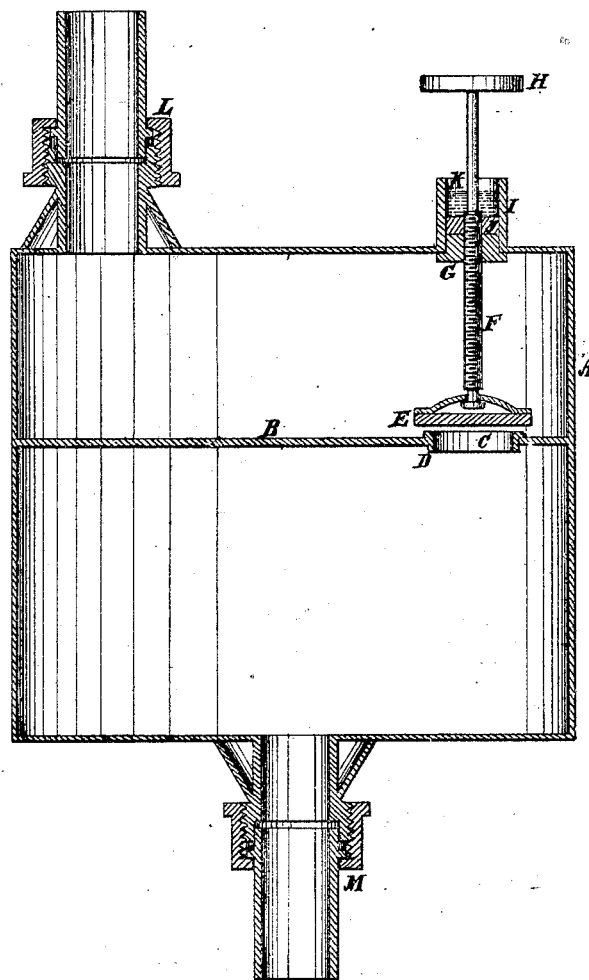


O. DEAN.
Improvement in Gas-Regulators.

No. 114,272.

Patented May 2, 1871.



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OTIS DEAN, OF RICHMOND, VIRGINIA.

Letters Patent No. 114,272, dated May 2, 1871.

IMPROVEMENT IN GAS-REGULATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, OTIS DEAN, of Richmond, in the county of Henrico and State of Virginia, have invented a new and useful Improvement in Gas-Pressure Gauge; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

The object of this invention is to provide suitable and convenient means for regulating and controlling the supply of illuminating-gas between the gas-meter and the burners; and

It consists in the application of a pivoted valve to a partition, in which a valve-seat is formed, and which is placed in a chamber formed between the supply-pipe and burners.

The accompanying drawing represents a vertical central section of the gas-pressure gauge.

Similar letters of reference indicate corresponding parts.

A is the vessel, which may be of any suitable shape and size, and made of any material suitable for the purpose.

B is a partition which divides the vessel into two compartments, the upper compartment being the smallest preferably.

C is an aperture through the partition, which is provided with a valve-seat, D.

E is the valve, which is made of leather or other suitable material and hung loosely on the lower end of the valve-rod F.

A screw-thread is cut on the valve-stem, as seen in the drawing, which engages with a screw-nut, G, secured to the top plate of the vessel.

The valve is raised and lowered by turning the stem by means of the hand-wheel H. The valve is raised and lowered to allow more or less gas to pass from one compartment to the other. The valve is adjusted so that the required supply of gas will pass when at a certain pressure. If the pressure increases the valve (hanging loosely on the stem) will vibrate and produce a buzzing sound, thus giving notice that more gas is passing than is required or that gas is being wasted.

A certain relation must exist between the position of the valve and the pressure to produce this sound and give the alarm. The position of the valve is regulated by turning the stem, as before stated.

I is a stuffing-box, on top of the vessel, with one or more disks, J, of leather or rubber therein, around the valve-stem.

Above these disks and within the box I place a quantity of quicksilver, as seen at K. This arrangement forms a tight joint and prevents the escape of gas.

L and M are pipes by means of which the vessel A is connected with the gas-pipe. The gas is thus made to pass through the vessel, but the quantity is so regulated that no more passes than is required for consumption.

The mode of operation is as follows:

The upper pressure of the gas creates a vibration, by the upward flow of the volume meeting with no resistance at the burners, (when they are open and the gas is burning,) thereby permitting the gas to pass out in as great volume as the amount passing in. The pressure in this case being altogether from the bottom the valve-cover, forming the only obstruction, is caused to vibrate. Now, it is not the upward pressure alone that creates the vibration, but the recoil or backward flow of the volume that has passed up and through the valve in excess of the number of burners engaged. That produces the same effect as the upward pressure, there being no equal pressure in either case on both sides of the valve-cover at the same time.

When vibrated it produces a sound sufficient to be audible at a considerable distance therefrom, by the gas being put in motion and passing back and forth from the compartment, where it is merely compressed, and coming in contact with the valve-cover causing it to tremulously quiver against its seat. It thus produces a sound that can be heard at a distance of twenty or thirty feet, and, if too far off to be heard, the quivering flame can be seen in any room of the largest house.

By this means a material saving is effected, and the atmosphere is not contaminated by the discharge of unconsumed gas into the apartments of the building.

The advantages of this arrangement will at once be understood and appreciated by all gas consumers.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

The pendent pivoted valve E, combined with a valve-seat located in partition B of a vessel, A, arranged between the gas-supply pipe and burners, as and for the purpose specified.

OTIS DEAN.

Witnesses:

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