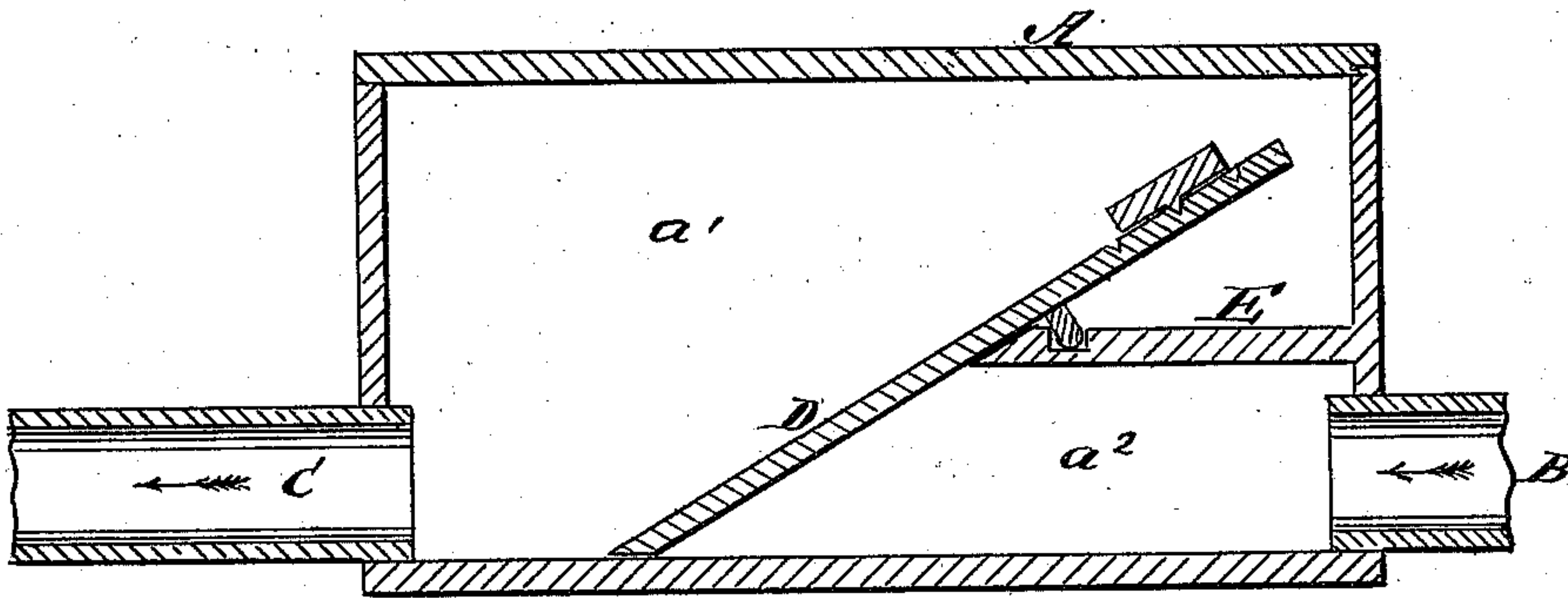


J. D. PATTON.  
GAS-REGULATOR.

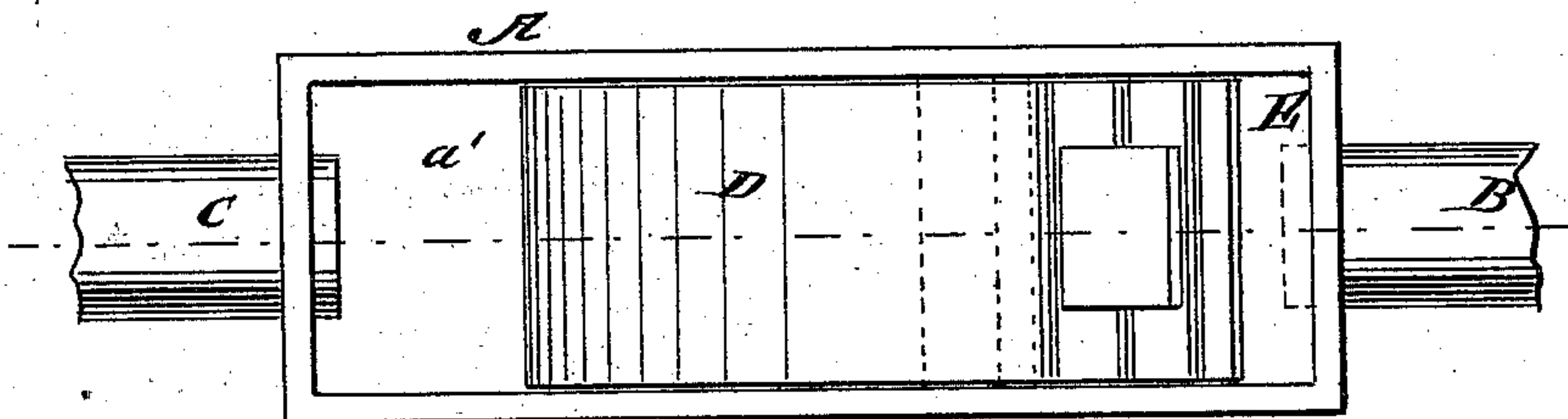
No. 173,556.

Patented Feb. 15, 1876.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*E. Wolff.*  
*John Goethals*

INVENTOR:

*J. D. Patton*  
BY *Mumford*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JOSEPH DESHA PATTON, OF TREVORTON, PENNSYLVANIA.

## IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **173,556**, dated February 15, 1876; application filed January 15, 1876.

*To all whom it may concern:*

Be it known that I, JOSEPH DESHA PATTON, of Trevorton, county of Northumberland and State of Pennsylvania, have invented a new and useful Improvement in Gas-Regulators, of which the following is a specification:

My invention consists of a hinged or pivoted and weighted gate resting on or against the current of passing gas, for the purpose of reducing the pressure and flow thereof.

Figure 1 is a longitudinal sectional elevation of my improved regulator taken on line *xx* of Fig. 2. Fig. 2 is a horizontal section.

Similar letters of reference indicate corresponding parts.

The regulator or governor consists of a hollow case, A, with a gas-inlet, B, and outlet C, and containing a hinged or pivoted weight or gate, D, operating as a valve between the inlet and outlet, so arranged that the gas must raise and bear its weight in passing from the inlet to the outlet. E represents a partition in the chamber, upon which the gate hinges, and which, in conjunction with the gate, divides the chamber A into  $a^1$  and  $a^2$ ,  $a^1$  connecting and opening freely into the pipe leading to the burners, and  $a^2$  into the pipe connecting with and leading from the source of supply, the purpose being that when in operation the pressure at the exit would be equal to that at the entrance, minus the weight or pressure of the gate.

In practice, it would probably be desirable to have an adjustable counter-balance or counter-weight for adjusting and steadying the gate. It is scarcely probable that a mere gate would operate with sufficient steadiness to allow the flow of gas to pass smoothly, and without receiving from the gate a vibratory or wavering motion that would be injurious, and perhaps fatal to its use, whereas a gate weighing, say, ten ounces, and counterbalanced to the extent of nine ounces, would rise with a pressure of one ounce, and remain steadily suspended so long as the pressure was kept up, so that with a pressure from

the incoming gas equal to two ounces, and on the outgoing gas equal to one ounce, the gate would remain open, and pass whatever amount of gas was necessary to keep up the pressures; but when the pressure on the outgoing gas would be above one ounce the gate would close and remain closed until the difference between the two pressures would equal the weight of the gate.

When two or more burners are to be supplied by the gas flowing through the regulator, the flow necessarily requires to be more rapid than if but one burner is to be supplied; but it is desirable to increase the pressure of the gate in proportion to the rapidity of flow, and this is accomplished by the manner of hinging and arranging it, for the more nearly it approaches a horizontal position, the more it is affected by the operation of gravity.

It is obvious that the most of the forms of counter-balance will operate with increased power as the gate approaches a horizontal position, and that the center of gravity of the gate and of its counter-balance can be readily so arranged that the pressure of the gate will be less and less as it opens wider and wider, and that in this way allowance can be made for increase of friction (and consequent decrease of pressure) consequent upon the increased flow of gas.

I do not claim, broadly, a pivoted weighted valve or gate for regulating the flow of gas; but,

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The gate D, hinged to the partition E within the chamber A, and covering the induction-passage  $a^2$ , as shown and described, whereby the gate or valve is opened more or less widely as the flow of gas is more or less rapid.

JOSEPH DESHA PATTON.

Witnesses:

BENJN. PATTON,  
R. G. PATTON.