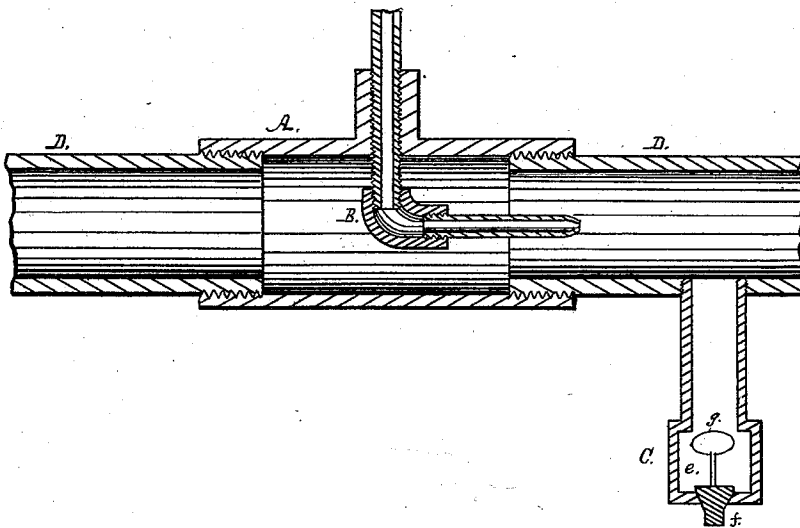


C. A. MURRAY.

APPARATUS FOR INCREASING THE PRESSURE OF GAS IN PIPES.

No. 176,982.

Patented May 2, 1876.



Witnesses.

James Johnston

W. L. Johnston

Inventor

Charles A. Murray

UNITED STATES PATENT OFFICE.

CHARLES A. MURRAY, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR INCREASING THE PRESSURE OF GAS IN PIPES.

Specification forming part of Letters Patent No. **176,982**, dated May 2, 1876; application filed January 24, 1876.

To all whom it may concern:

Be it known that I, CHARLES A. MURRAY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Process and Apparatus for Increasing the Pressure of Gas in Pipes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to an improvement in process and apparatus for increasing the pressure of gas in pipes at a point between the supply and outlet of the gas; and consists of a chamber, steam-jet pipe, and automatic drain-valve, in combination with the gas-pipe.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawing, which forms part of my specification, A is a chamber; B, a steam-jet pipe; C, a drain-valve, and D a gas-pipe. In conveying gas from gas-wells to a place distant from the wells the pressure of gas becomes greatly diminished, thereby destroying, to a great extent, its efficiency as a fuel for manufacturing purposes. To obviate this difficulty I form a chamber, A, in the pipe used for conveying the gas from the wells, at a point or points which is or are between the place of supply and the outlet of gas. In this chamber I place a steam-jet pipe, B, which communicates with a steam-boiler or other steam-supply, said jet-pipe being furnished with a suitable regulating-valve,

for adjusting the flow of steam through it. The gas-pipe D is furnished with an automatic drain-valve, consisting of a chamber, *e*, valve *f*, having a float, *g*, the buoyancy of which, when the chamber *e* is filled with water, must be more than the pressure of gas upon the valve, so that when the chamber *e* fills with water, the float will raise the valve, and thereby allow the water to escape from the chamber. The steam should be dry or superheated before entering that part of the jet-pipe B in the chamber A. The steam, flowing through the jet-pipe B, will form a partial vacuum forward of the jet-pipe, and the gas in the rear of the outlet of the jet-pipe B will rush forward to fill the partial vacuum thus formed, and the current of steam will drive forward the gas in front of the outlet of the jet-pipe, and thereby increase its velocity and density, which are important when the gas is used as a fuel for manufacturing purposes. In case the steam should become condensed and form water in the gas-pipe, it will be drained off through the medium of the chamber *e* and automatic valve.

Having thus described my invention, what I claim is—

The combination of the chamber A, jet-pipe B, and automatic drain-valve C with the gas-pipe D, substantially as herein described, and for the purpose set forth.

CHARLES A. MURRAY.

Witnesses:

JAMES J. JOHNSTON,
A. H. JOHNSTON.