J. D. PATTON.

Gas Apparatus.

No. 154,277. Patented Aug. 18, 1874.

Fig. 1.

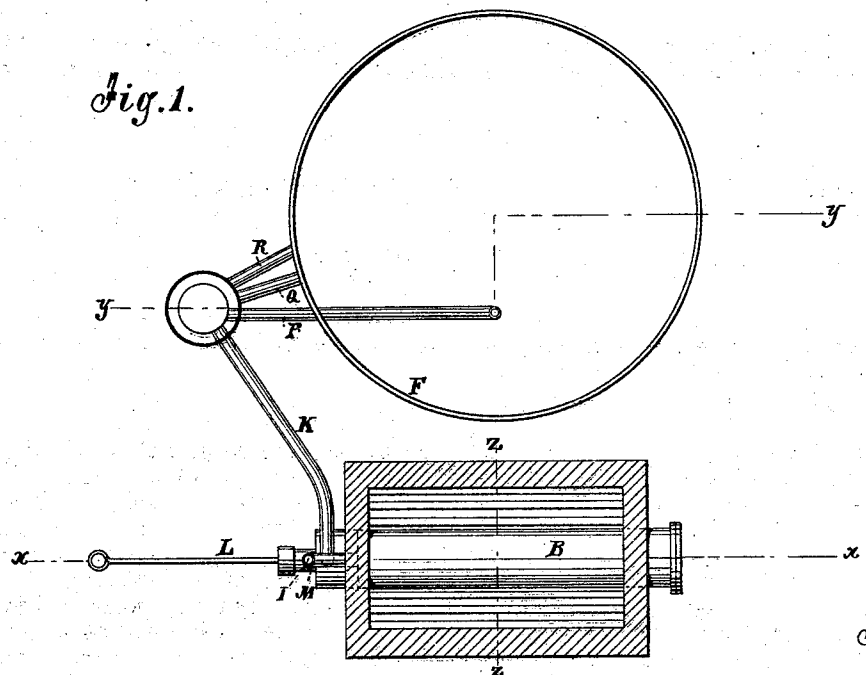


Fig. 2.

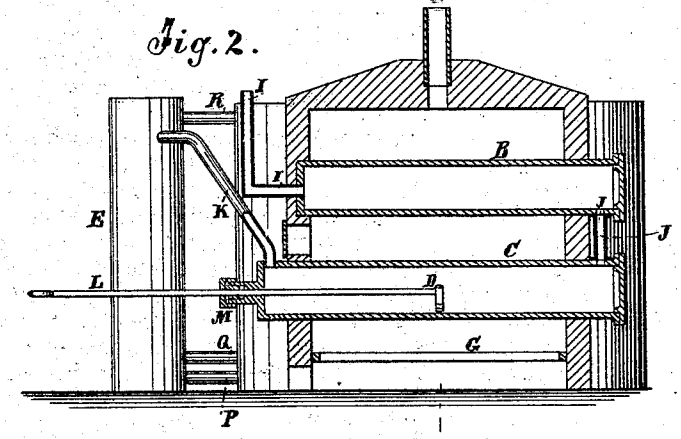


Fig. 4.

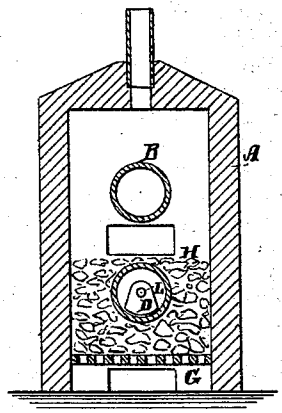
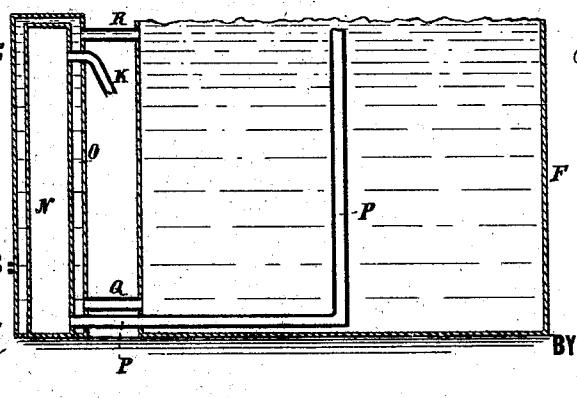


Fig. 3.



WITNESSES:

A. Bennenendorf.

A. Sedgwick

INVENTOR:

J. D. Patton

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH D. PATTON, OF TREVORTON, PENNSYLVANIA.

IMPROVEMENT IN GAS APPARATUS.

Specification forming part of Letters Patent No. **154,277**, dated August 18, 1874; application filed February 21, 1874.

To all whom it may concern:

Be it known that I, JOSEPH D. PATTON, of Trevorton, in the county of Northumberland and State of Pennsylvania, have invented a new and Improved Gas Apparatus, of which the following is a specification:

This invention has for its object to improve upon the construction of the hydrocarbon-gas apparatus covered by Letters Patent granted to me on the 20th day of January, 1874, No. 146,610.

The invention consists of a condenser in combination with the retort and gas-holder, through which the gas passes directly from the retort to be cooled, and for separating the matters subject to condensation, the said condenser being a vertical pipe or cylinder, one or more, into which the gas discharges, with a surrounding water-jacket, connected by pipes with the water-chamber of the gas-holder, in such manner that a circulation of water will be set up as soon as the water of the condenser is warmed by the heat taken up from the gas by the warm water flowing out at the top and the cold water in at the bottom.

Figure 1 is a horizontal section through the furnace, condenser, and gas-holder. Fig. 2 is a sectional elevation of the furnace and retorts, taken on the line *x x* of Fig. 1. Fig. 3 is a sectional elevation of the gas-holder and condenser on the line *y y* of Fig. 1, and Fig. 4 is a transverse section of the furnace and retorts on the line *z z* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A represents the furnace; B, the upper retort; C, the lower one; D, the scraper; E, the condenser, and F the gas-holder. The lower retort, C, is arranged with reference to the fire-grate G so as to be enveloped in the fire-bed H, while the other one is placed in the space above, to be exposed to a lower degree of heat, for heating the oil gradually, the oil being fed into it at I, and thence along to the other end, from which it passes into C at J, and then back to the front, where it escapes by the pipe K into the condenser E, being raised gradually up to the heat required for converting it into fixed gas during its progress, by which better results are obtained, and with greater economy, than by introducing the cold oil into a retort sufficiently heated to decompose the oil. The scraper D is merely a plate of steel or other material, adapted to scrape off the deposit of carbon and other matters from the inner walls of the retort; it is provided with a handle, L, which projects out through the stuffing-box M, so as to slide forward and back freely; it may be jointed, so as to remove the projecting part when desired.

The condenser consists of an inner cylinder, one or more, N, surrounded by a water-jacket, O, the cylinder being connected at the top with retort C by the pipe K, to receive the gas; also connected with the gas-holder at the bottom by the pipe P, for discharging the cooled gas into it, and the jacket being connected to the water-tank of the gas-holder by the pipes Q and R, arranged to maintain a circulation of water around cylinder N, so as to cool and condense the gas effectually.

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

1. The combination of a scraper, D L, with a retort, substantially as specified.

2. The combination, with the water-tank F, of the inner cylinder N, surrounding water-jacket O, water-circulating pipes R Q, and gas inlet and outlet pipes K P, all constructed and arranged as herein set forth.

JOSEPH DESHA PATTON.

Witnesses:

THOS. FOWLDS, Jr.,

HENRY Z. RAKER.