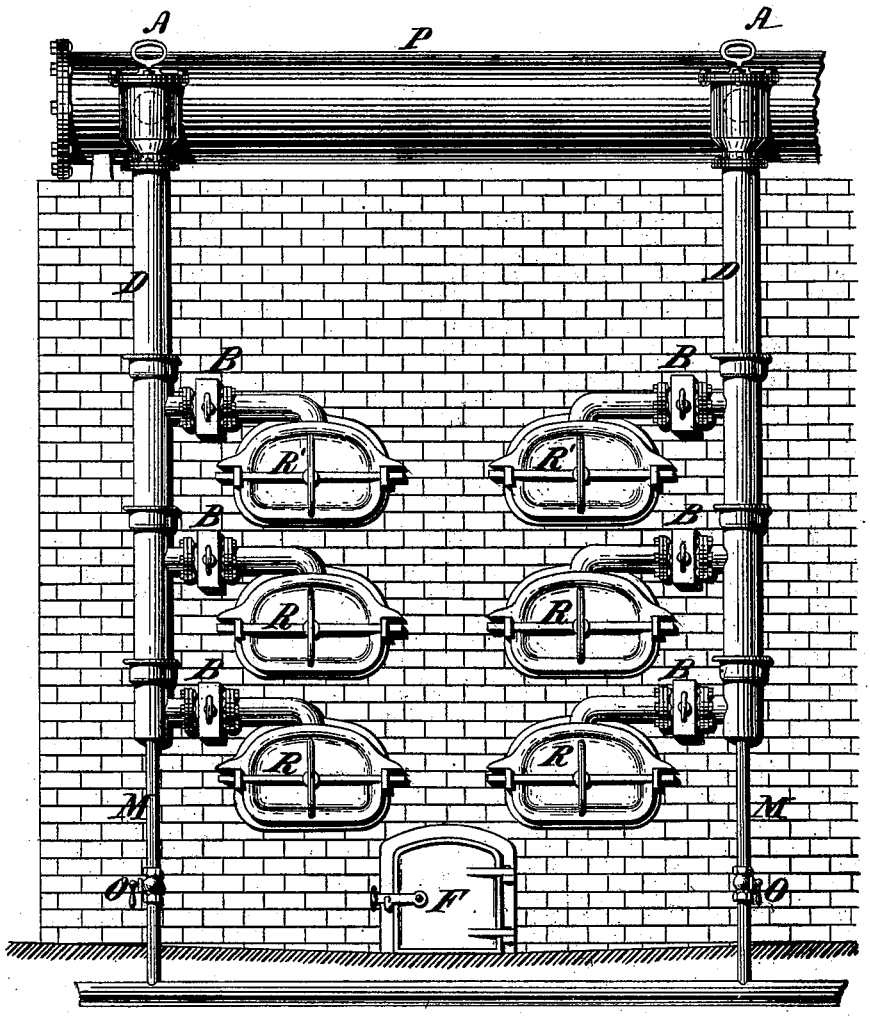
2 Sheets—Sheet 1.

T. F. ROWLAND.

Gas-Retort.

No. 211,591. **Patented Jan. 21, 1879.**

FIGURE 1.



WITNESSES:

Geo. H. Miatt

S. H. Sullivan

Inventor:

Thomas F. Rowland

By his attorney

E. N. Dickerson Jr.

2 Sheets—Sheet 2.

T. F. ROWLAND.

Gas-Retort.

No. 211,591. Patented Jan. 21, 1879.

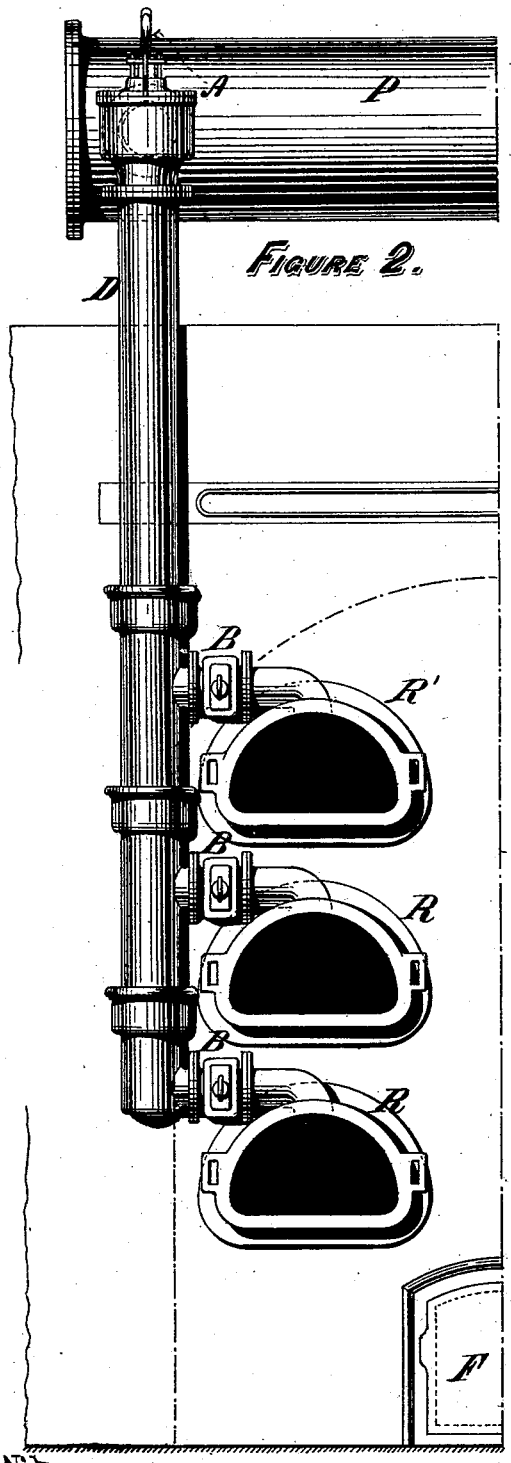


FIGURE 2.

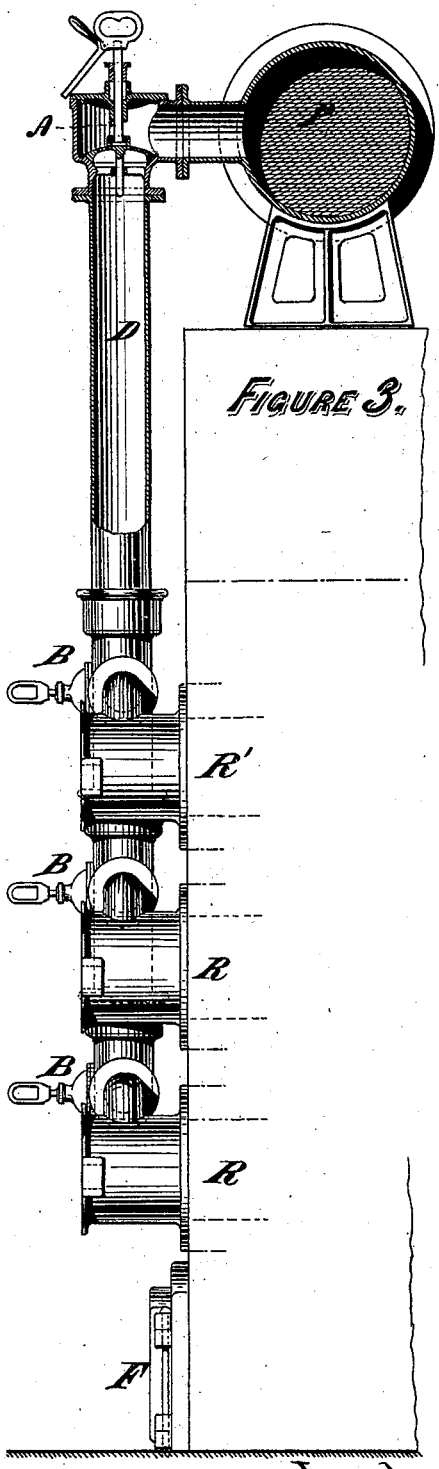


FIGURE 3.

Witnesses:
Leo. W. Miatt
S. H. Sullivan.

Inventor:
Thomas F. Rowland
By his Attorney
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UNITED STATES PATENT OFFICE.

THOMAS F. ROWLAND, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-RETORTS.

Specification forming part of Letters Patent No. **211,591**, dated January 21, 1879; application filed June 5, 1878.

To all whom it may concern:

Be it known that I, THOMAS F. ROWLAND, of the city, county, and State of New York, have invented a new and useful Improvement in Gas-Fixing Retorts, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

My invention has reference to those processes of gas-manufacture in which a vapor is converted into gas by being passed through a highly-heated retort, called a "fixing-retort," and is designed to facilitate the removal or cleaning of these retorts separately without disturbing their operation as a whole, and also to allow of the escape of explosive impurities before they enter the heating-retorts, thereby preventing the injury or destruction of the apparatus. Owing to the very high temperature at which these retorts are maintained, it frequently happens that they are burned out and destroyed, and it has been necessary when one of the retorts was destroyed to stop the mechanism until the retort could be replaced.

My invention has for its object the shutting off of the currents of gas from the retort which it is desired to replace while the other retorts of the series are allowed to operate.

In my drawings, Figure 1 represents a front elevation, showing a bench of retorts set in brick. Fig. 2 shows a section through certain other retorts at their rear. Fig. 3 shows a section, at right angles to the section at Fig. 2, through the supply-pipe P and valve A.

The retorts forming each bench are heated from a central furnace. The pipe P is connected, at intervals, with the stand-pipes D, each communicating with the vertical series of retorts. Each of these pipes D is provided with a valve, A, at its upper extremity, whereby it can be shut off from the supply-pipe P. The stand-pipes D are connected to the ends of the retort by the short pipes. (Shown clearly in Fig. 2.) Each of these pipes is provided with a valve, B. Similar connections are used at the other end of the retorts.

It will be observed that the eduction and induction pipes are similarly arranged at the front and rear of the retorts, and that the corresponding valves should be simultaneously turned in order to accomplish the results desired.

A separate description of the rear of the apparatus is not needed, since it corresponds with the arrangement of the front.

At the bottom of the pipes D are shown in Fig. 1 the escape-pipes M, provided with stop-cocks O.

The operation can now be understood. Vapor is supplied to the fixing-retorts through the pipe P. It may happen that this pipe and the stand-pipe D contain air. In case such air passes into the fixing-retorts in company with the entering vapor, an explosion would occur. I therefore have attached the purge-pipes M, provided with stop-cocks O. These pipes M remain open until all the air has been driven out, when they are closed. In case the valves A and B are open, the gas passes down through the pipes D, through the retorts, and out at the back through similar pipes and connections, thereby being fixed or converted into a permanent gas.

In case the upper retort, R′, should be in any way injured, the valve B and the corresponding valve at the other end are closed, when the gas passes by such retort and through the other retorts of the series.

In case a whole bench should be burned out, the valve A should be shut, and the corresponding valve at the other end, when the gas passes along the pipe P without entering that series.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A series of fixing-retorts having a supply-pipe at one end and a delivery-pipe at the other, each retort of the series being provided with two valves, by one of which it can be shut off from the supply-pipe, and by the other of which it can be shut off from the delivery-pipe, substantially as described.

2. In a bench of fixing-retorts consisting of two or more series of retorts, the combination, with each series, of a common supply-pipe, connecting it to a main supply-pipe at one end, and a delivery-pipe, connecting it to a main delivery-pipe at the other end, each retort being provided with a valve at both its supply and delivery ends, and each delivery

and each supply pipe connected with each series being provided with a separate valve, by means of which said series may be cut off from all other series, substantially as described.

3. In combination with a supply-pipe and series of fixing-retorts, a purge-valve, by means of which the supply-pipes may be purged of air before the admission of gas, substantially as described.

THOS. F. ROWLAND.

Witnesses:
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WM. J. SAWYER.