

W. W. GOODWIN.

Gas-Retort.

No. 159,816

Patented Feb. 16, 1875.

Fig. 1.

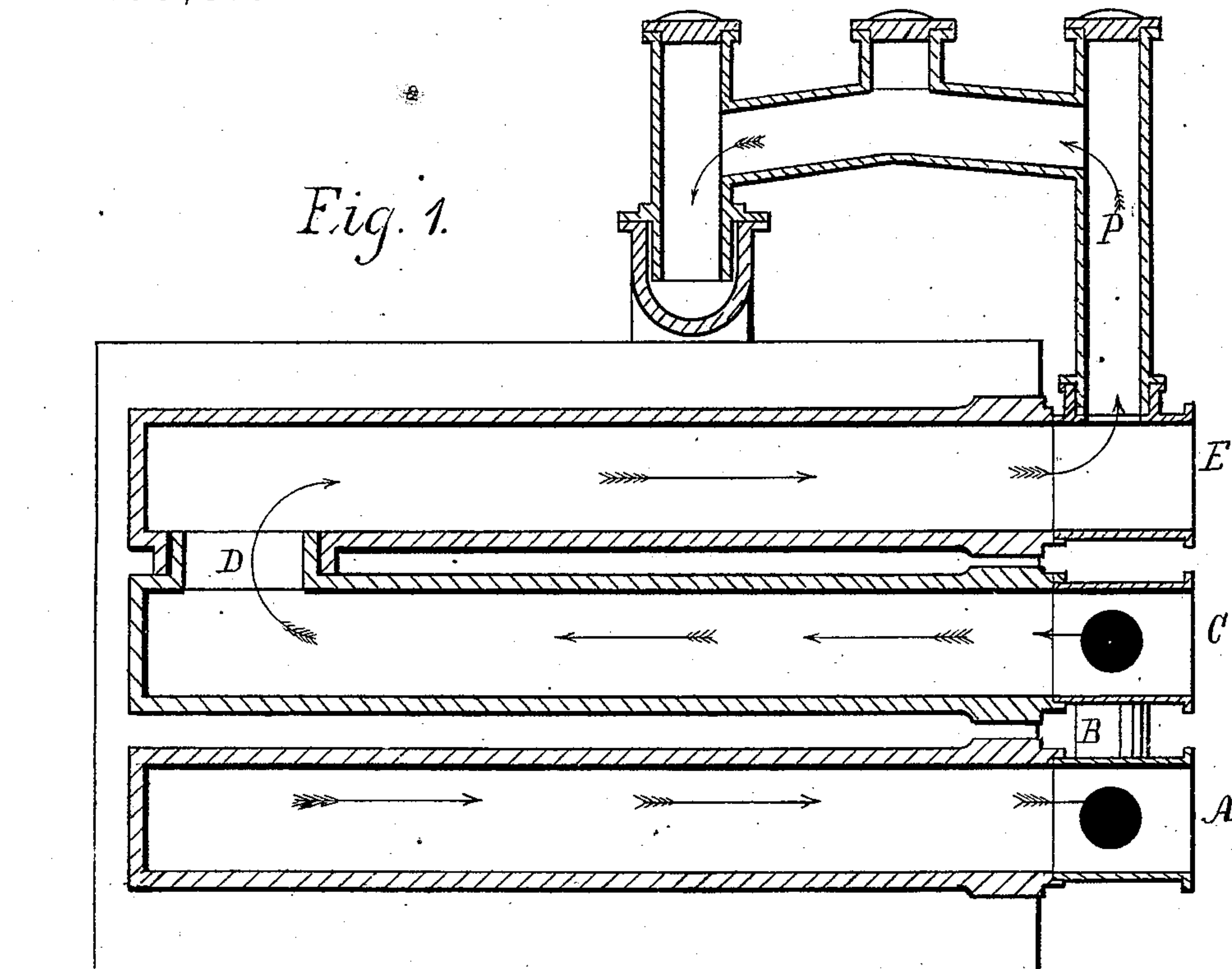
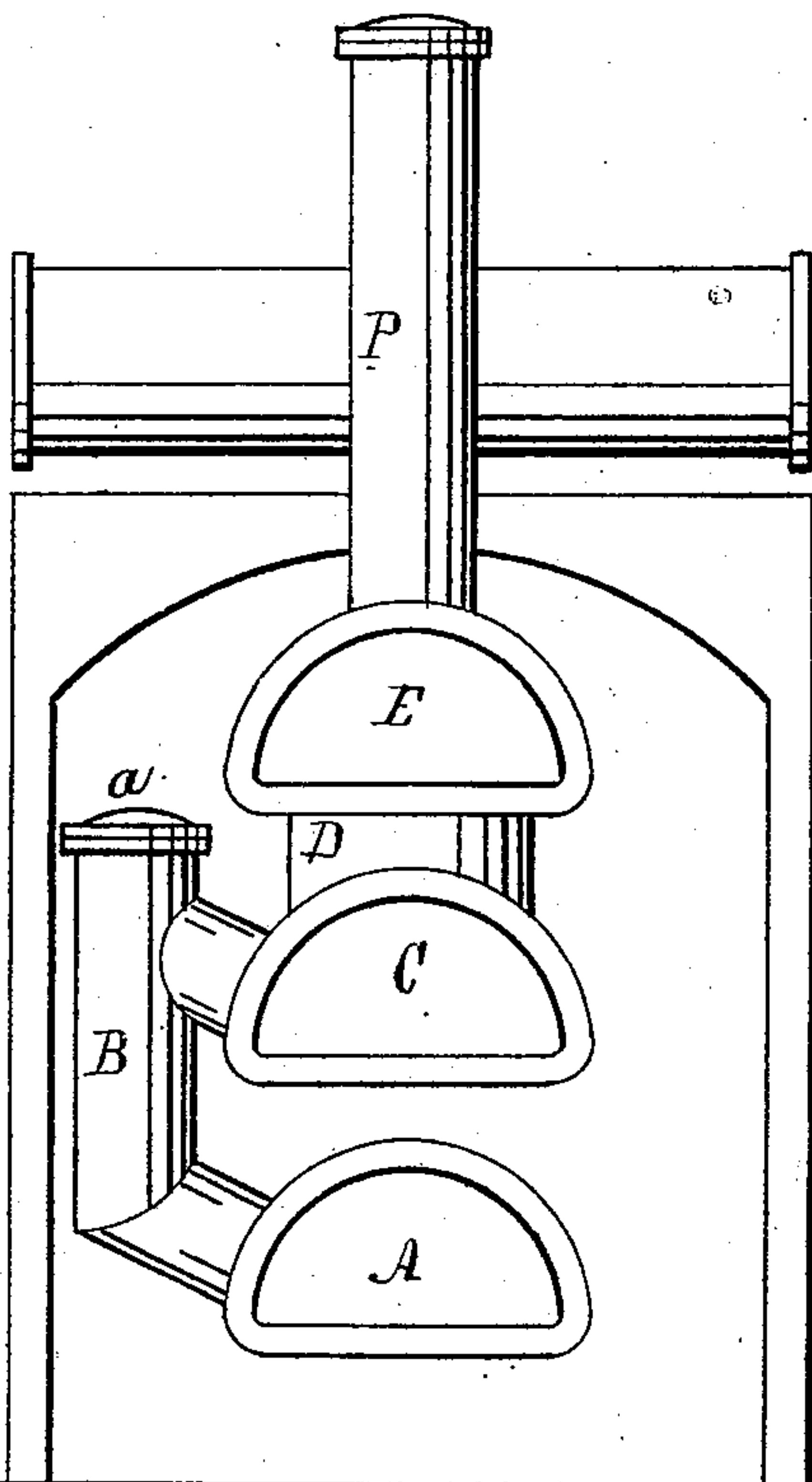


Fig. 2.



Witnesses:  
S. Lewis Jones  
Wm. H. Morrison.

Inventor:  
William W. Goodwin

# UNITED STATES PATENT OFFICE.

WILLIAM W. GOODWIN, OF CAMDEN, NEW JERSEY.

## IMPROVEMENT IN GAS-RETORTS.

Specification forming part of Letters Patent No. **159,816**, dated February 16, 1875; application filed April 10, 1874.

*To all whom it may concern:*

Be it known that I, WILLIAM WALLACE GOODWIN, of Camden, in the county of Camden and State of New Jersey, have invented an Improvement in the Connection of Gas-Retorts, of which the following is a specification:

The object of my invention is to connect a series of retorts for the manufacture of illuminating-gas in such a way that the carbonaceous deposit may be easily removed from the retorts, by the gas passing through the series of said retorts from the lower to the upper one, the same having the effect of increasing both the quantity and quality of the gas.

Referring to the accompanying drawings, Figure 1 is a longitudinal section of a bench of retorts connected according to my said invention, and Fig. 2 is a front view of the same.

Of the three retorts A C E the upper one, E, is fitted with a stand-pipe, P, by which the series is connected with the hydraulic main. The middle and upper retorts communicate, near their rear ends, through a connecting-opening, D, which may be merely a heavy tile or fire-clay block having the requisite short straight opening through it. The pipe B connects the lower and the middle retorts by suitable branches, to which access may be easily gained through the upper end on the removal of the cap or plug *a*. The same purpose may be attained by making the front pipe B as a short vertical pipe between the projecting

mouth-pieces of the retorts; and by making the rear connection D oblique in its direction, as would be necessary in a bench of five retorts.

The operation of the process may be described as follows: All the retorts A, C, and E are charged simultaneously with coal in about the same quantity—say, from two hundred to three hundred pounds. The upper retort may be charged heavier, if desired. The retort-lids are then put on in the usual manner. The gas passes from the lower, through the middle, into the upper; thence through the stand-pipe to the hydraulic main, by which process the gases are thoroughly mixed and form a fixed illuminating-gas of high candle-power, and there is less carbon left on the retorts, and less tar and other valueless liquids are made than by the ordinary process.

I claim as my invention—

The combination of the retorts A, C, and E with the connections D and B and the stand-pipe P, substantially as described, whereby the gas passing through the highly-heated coal in the retorts prevents the deposition of carbon and tar, and is thereby enriched and increased in volume.

WILLIAM W. GOODWIN.

Witnesses:

S. LEWIS JONES,  
WM. H. MORISON.