4 Sheets—Sheet 1.

J. HANLON.

Gas Apparatus.

No. 203,909. Patented May 21, 1878.

Fig. 1.

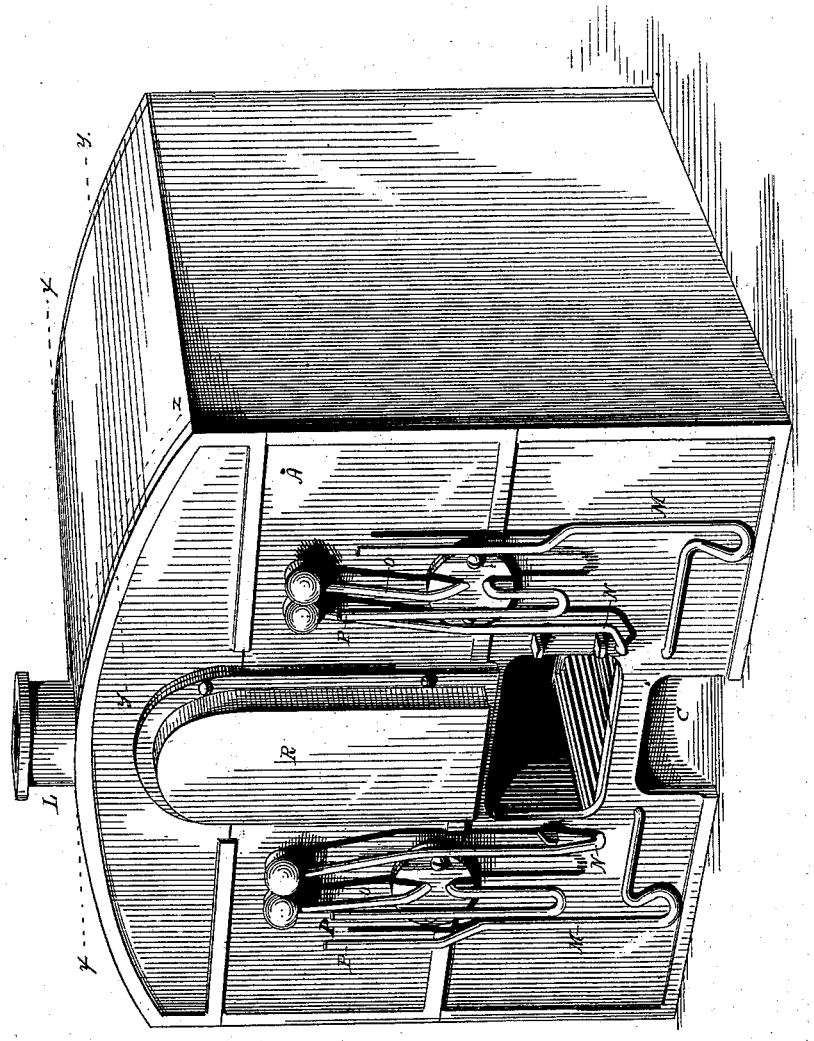

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Fig. 2.

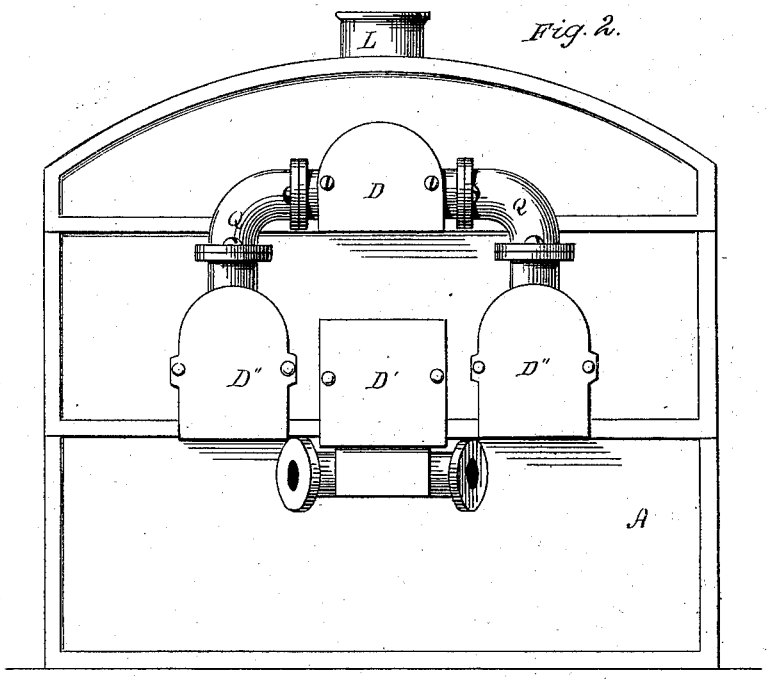

Fig. 3.

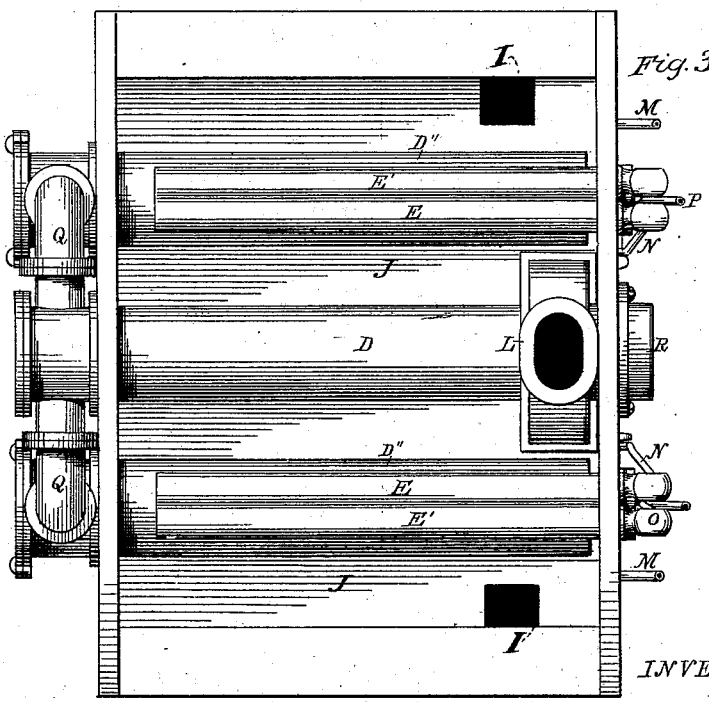

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Fig. 4.

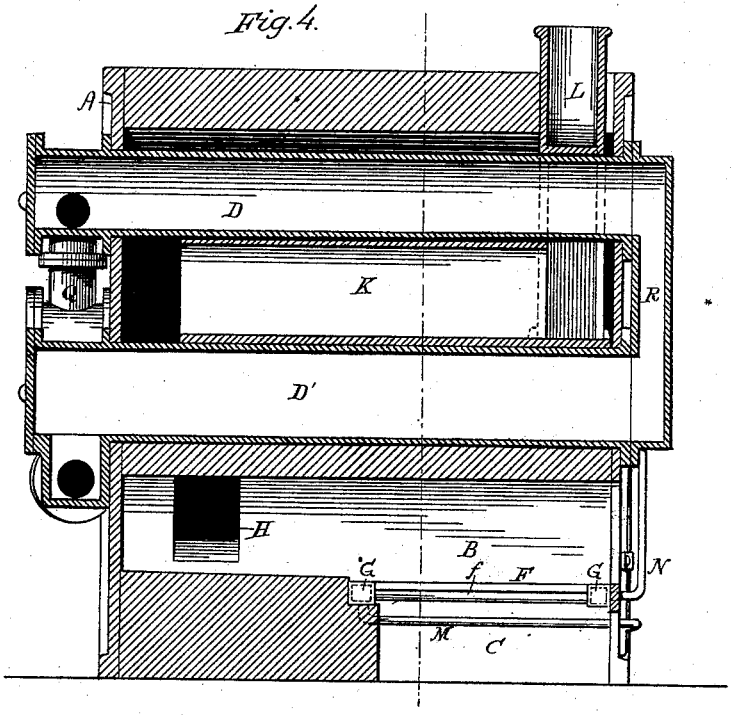

Fig. 5.

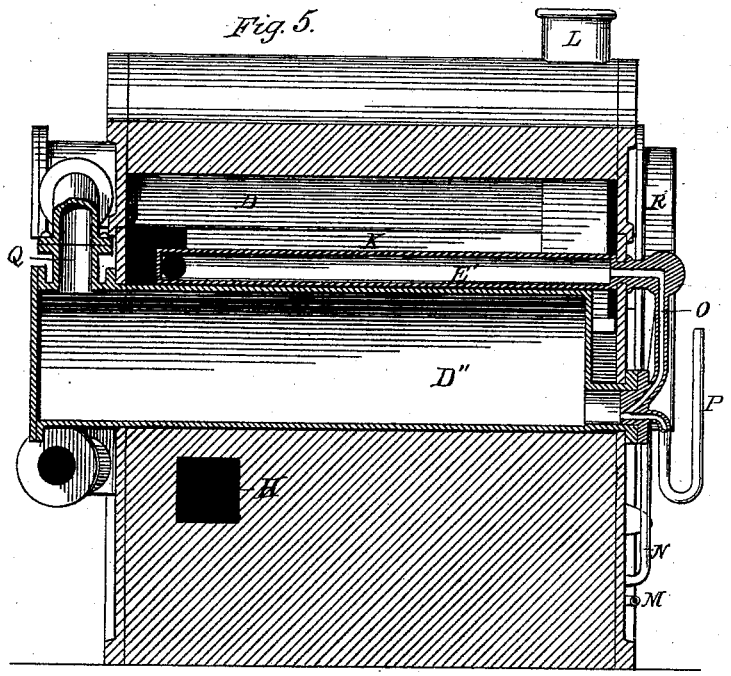

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Fig. 6.

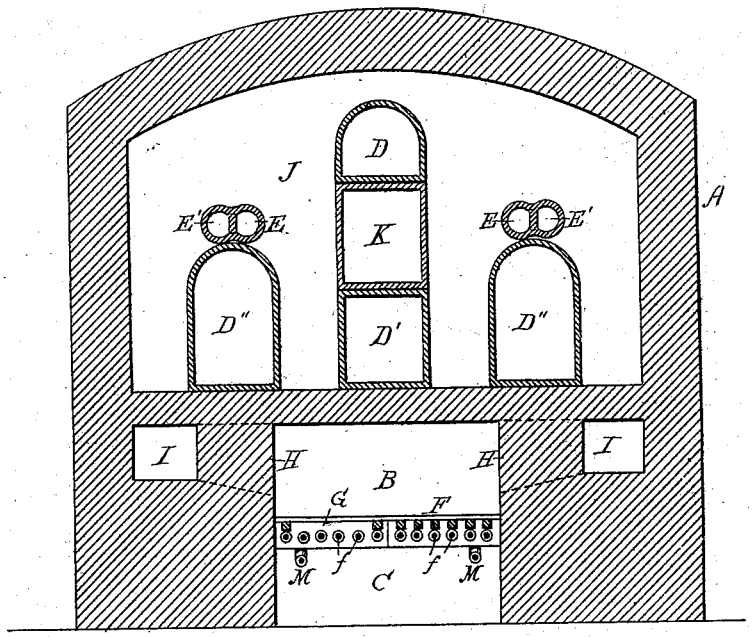
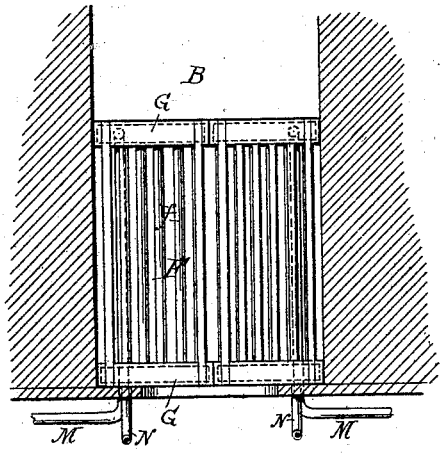


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN HANLON, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS APPARATUS.

Specification forming part of Letters Patent No. **203,909**, dated May 21, 1878; application filed March 8, 1878.

To all whom it may concern:

Be it known that I, JOHN HANLON, of the city of New York, have invented certain new and useful Improvements in Gas Apparatus, of which the following is a clear, full, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a gas apparatus with my improvements attached. Fig. 2 is a rear view of the same. Fig. 3 is a plan view with the cover removed. Fig. 4 is a longitudinal vertical section through *x x*. Fig. 5 is a longitudinal vertical section through *y y*. Fig. 6 is a cross vertical section through *z z*. Fig. 7 is a horizontal section, showing grate-bars.

My invention relates to that class of apparatus used for the manufacture of gas from petroleum; and it consists in the several combinations of devices hereinafter explained and claimed.

To enable others skilled in the art to make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

In the drawings, A represents the shell or outside boxing of my retort-bench; B, the furnace; C, the ash-pit; D D′, the central retorts or superheaters; D″, the side retorts; and E E′, the superheating steam-chambers. The fire-grate F is composed of the boiler-tubes *f*, which connect at each end with common pipes G, which secure a free circulation of water through all the tubes forming the fire-grate.

The flame and hot products of combustion from the furnace B are not allowed to strike directly upon the retorts, but pass from the rear of the furnace, through openings H and the return side flues I, to the front, and then, through similar openings, enter the hot-air chamber J, enveloping the retorts and superheaters, finally passing off through the flue K and chimney L.

M represents the water-feed pipes, these pipes leading to the rear of the fire-grate, and there connecting with the pipe G and supplying the boiler-tubes *f*. The steam generated in these tubes rises through the pipes N to the superheater E, and, passing through E, returns to the front through E′, where the dry steam is discharged through the pipe O into the retort D″ at an angle with the oil-pipe, for a purpose hereinafter explained.

P represents the oil-feed pipes, through which the oil passes to the retort D″, in which the oil is partially decomposed.

As the oil passes into the retort, and at the very point of entrance, it is struck at an angle by the steam entering through the pipe O. (See Fig. 5.) By this manner of admitting the superheated steam and oil into the retort D″ the heavy sluggish oil is driven forward through the retort, and no tarry matter is allowed to collect at or near the port.

After the oil has been partially decomposed in the retort D″ it passes, in a quasi-gaseous condition, through pipes Q at the rear into the central retort or superheater D, thence through this retort to the front of the bench, and through outside passage R down into the retort D′, and from this retort the gas passes through proper openings in the rear of the bench to the gasometer or receiver.

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

1. The retorts D″, in combination with the upper retort D, connected by the pipes Q, and with the lower retort D′, connected by the outside pipe R, all constructed and relatively arranged substantially as and for the purpose set forth.

2. The retorts D″, D′, and D and pipes Q and R, constructed and arranged as described, in combination with the steam-superheaters E E and the pipes O and P, substantially as and for the purpose set forth.

3. The horizontal center flue K, between the upper and lower retorts D D′, communicating by suitable openings with the hot-air chamber J, in combination with the horizontal side flues I, connecting with the rear of the fire-box by the passages H, constructed as described.

JOHN HANLON.

Witnesses:

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B. ZEVELY.