J. McCLARTY.

Apparatus for Manufacturing Illuminating-Gas from Petroleum.

No. 165,012. Patented June 29, 1875.

Fig. 1

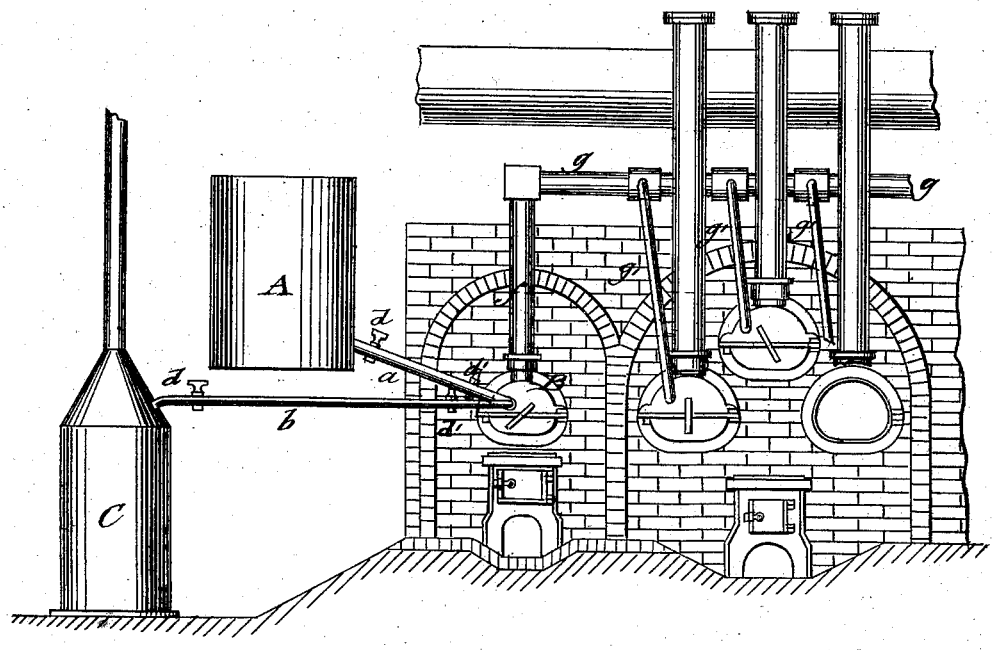


Fig. 2.

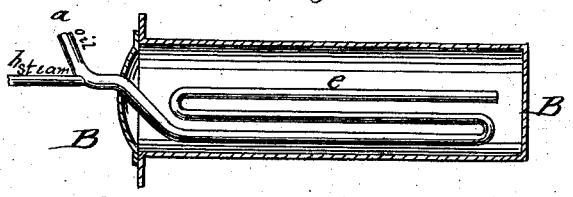
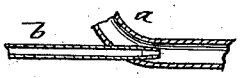


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN McCLARTY, OF RACINE, WISCONSIN.

IMPROVEMENT IN APPARATUS FOR MANUFACTURING ILLUMINATING-GAS FROM PETROLEUM.

Specification forming part of Letters Patent No. **165,012**, dated June 29, 1875; application filed March 13, 1875.

To all whom it may concern:

Be it known that I, JOHN MCCLARTY, of Racine, in the county of Racine and State of Wisconsin, have invented a new and useful Improvement in Apparatus for the Manufacture of Illuminating-Gas from Petroleum, &c., of which the following is a specification:

In the accompanying drawing, Figure 1 represents a front elevation of a coal-gas bench with my improved attachments for manufacturing gas from petroleum and its products; Fig. 2, a vertical longitudinal section of the preparatory retort for heating the petroleum and steam; and Fig. 3, a detail section of the joint of the steam and oil-conducting pipes.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved system of manufacturing illuminating-gas from petroleum and its products in the common gas-benches, in such a manner as to admit the alternating working of the same for naphtha-gas or coal-gas, and produce nearly three times the quantity of gas in a certain time, at less cost and labor, and with a less number of retorts.

The construction of gas-works having equal capacity may be accomplished by the use of my process at nearly one-half of the cost of the present works, and the present coal-gas works may be readily adapted for my process, so that it forms the cheapest, simplest, and most convenient process for the manufacture of petroleum or naphtha gas hitherto invented.

My invention consists, first, in treating the petroleum or naphtha under the admission of steam in a preparatory retort, and conveying the semi-fixed gas produced therein by connecting-pipes to the common retorts of gas-benches, from which the thoroughly-fixed gas is conveyed for further treatment, in the usual manner.

In the drawing, A represents a small tank, to which the petroleum or naphtha is fed by a hand-pump from a supply-tank at such suitable distance from the works that no accident by fire, &c., may occur.

The oil is conveyed by a pipe, *a*, to the first or preparatory retort, B, which is made of cast-iron, of round shape, and suitable width and length, and heated to a bright-red color previous to the admission of the oil. The nozzle of a steam-pipe, *b*, is inserted about one and a half inch into the oil-pipe, as shown in Fig. 3, for the purpose of imparting force to the oil.

The steam is obtained from a steam-boiler, C, and the inlet of oil and steam in pipes *a* and *b* is governed by valves *d* near the tank and boiler, and by valves *d'* near the junction of the pipes.

The oil and steam pass together to the inside of the retort B through a pipe, *e*, in the shape of a flattened **S**, passing first to the back end of the retort, then forward to the front, and, finally, to the back end again, as shown in Fig. 2, being discharged in a highly-heated spray, and forming, by the heat of the retort, a semi-fixed gas. This gas passes then through the outlet-pipe *f* to a bench-connecting pipe, *g*, and through drop-pipes *g'* to the lids of the several retorts of the gas-bench. The pipes *g'* enter the retorts, and extend to a point about twenty inches from the back end of the same, discharging there the gas, and converting it, by passing forward in the retorts to the stand-pipes, into a thoroughly-fixed gas.

Each of the drop-pipes *g'* on the benches is provided with a valve and union-coupling, so that the flow of prepared gas into the retorts can be governed at pleasure. The retorts are fed subject to a pressure-gage placed on stand-pipe of retort B.

Some of the retorts may be constructed to make naphtha gas, while other retorts of the same bench may be charged with coal, and both be worked simultaneously, if required; or the benches may be used alternately for petroleum or coal, the retorts lasting, in this manner, much longer, as no carbon will form inside the retorts, and they do not require to be burned out to remove the carbon. A considerable saving in fuel, labor, and time for purifying is obtained, as no residual products or condensation are formed by the gas, all foreign matter being left in the first or preparatory retort, to be made into gas, leaving only occasionally a kind of coke in the first retort, which can be easily removed.

Should the supply of petroleum fail, by ac-

cident or otherwise, no interruption of the works is necessary, as they are instantly employed for the common coal process.

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

The combination, in a gas-making machine, of the oil-supply pipe *a*, steam-pipe *b*, coil *e*, and retort B, with a bench of gas-retorts, provided with pipes *f g g'*, as and for the purpose specified.

JOHN McCLARTY.

Witnesses:
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