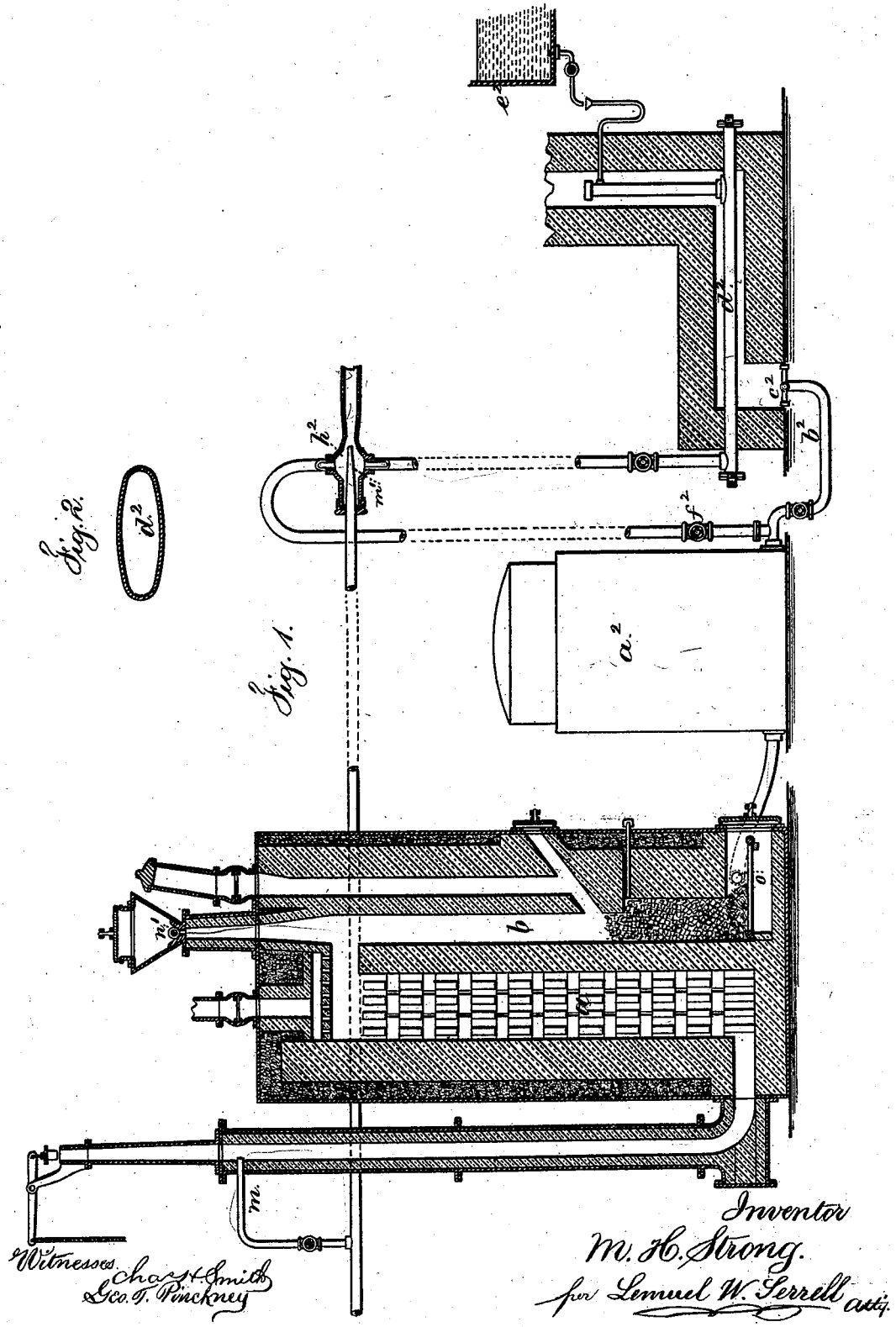
M. H. STRONG.

Apparatus for the Manufacture of Illuminating-Gas.

No. 209,630. Patented Nov. 5, 1878.



UNITED STATES PATENT OFFICE.

MYRON H. STRONG, OF BROOKLYN, NEW YORK, ASSIGNOR TO LEMUEL W SERRELL, TRUSTEE FOR SAID STRONG, SIDNEY CORNELL, HENRY M. PIERSON, AND WALTER E. LAWTON.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS.

Specification forming part of Letters Patent No. **209,630**, dated November 5, 1878; application filed August 10, 1877.

To all whom it may concern:

Be it known that I, MYRON H. STRONG, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Apparatus for the Manufacture of Gas for Illuminating Purposes, of which the following is a specification:

To render the gas-making operation uniform, the heat employed has to be proportioned to the quantity of liquid hydrocarbon introduced. When solid fuel is employed the impossibility of practically adjusting the feed of the oil to the temperature of the retort, or the temperature to the feed, has heretofore been the cause of wide variation in the quality and quantity of the resulting gas, for if the temperature falls while the feed is maintained, much of the vapor escapes decomposition, and suffers condensation after leaving the retort. If, on the other hand, the temperature increases while the feed is maintained, the vapor undergoes excessive decomposition, liberating free carbon in the form of lamp-black or soot, and clogging the retort and conveying-pipes, besides involving a loss of light-giving element.

It has hitherto been found next to impossible to establish and maintain between the temperature and feed a relation favorable to the thorough and economical decomposition of oil, when solid fuel has been the combustible used for the generation of the heat. This is due to the fact that no form of solid fuel can be fed to a furnace so uniformly as to impart to the retort a continuous uniform temperature. It is obvious, however, that the combustion of a gaseous fuel fed to a furnace in which a retort is placed would impart a constant and unvarying temperature to the retort, provided the gaseous fuel was conveyed to the point of combustion from a holder or reservoir of constant pressure through pipes and burners or valves that remain unchanged after adjustment, and it is also obvious that a uniform flow of oil or other liquid can be established from a reservoir into a retort, provided the pressure of the liquid in such reservoir be maintained, and the size of the valve and pipe conveying such liquid to the retort remains unchanged.

With a temperature and feed susceptible of being adjusted and kept in harmony, the one with the other, a thorough, uniform, and economical decomposition of the oil can be secured.

My invention relates to an apparatus for and process of manufacturing illuminating-gas. I produce a non-luminous gas by passing steam through incandescent carbon. An apparatus adapted to this object is shown in Letters Patent No. 176,369, granted June 26, 1876, and No. 191,082, granted May 22, 1877. The non-luminous gas is received into a holder, and a portion thereof is used as fuel to heat a retort in which olefiant gas is manufactured separately and independently of the non-luminous gas, and then the two gases are mixed continuously and in proper proportions to form illuminating-gas, an injector being used for this purpose, so as to thoroughly and intimately commingle said gases.

In the drawing I have represented, in Figure 1, an apparatus adapted to making the gas by my improved method.

The decomposing-chamber for making non-luminous gas is represented sectionally. The steam is supplied at *m*, and, passing into the heated retort *a*, and, ascending and mixing with the carbon supplied at *m'*, and then descending through the heated retort *b* and incandescent fuel, escapes by the pipe *o*, as described in an application for Letters Patent allowed to me May 10, 1877.

The non-luminous gas passes into a holder, a^2, of any suitable character, and from that the pipe b^2 carries such gas to any suitable burner, c^2, beneath the retort d^2, into which retort petroleum or similar liquid hydrocarbon is admitted from a reservoir, e^2.

The retort d^2 is preferably of elliptical shape, as shown in the section, Fig. 2.

The supplies of gas to the burner and of petroleum into the retort are regulated by cocks or other suitable appliances, so that the heat can be sufficient for converting the petroleum into olefiant gas without residuum or loss.

The olefiant gas and the non-luminous gas from the holder a^2 are mixed by the action of a steam-injector. The quantity of the non-luminous gas in proportion to the olefiant gas can be regulated by the cock f^2. The suction action in the chamber h^2, produced by the jet of steam issuing from the nozzle m', draws the gases into said chamber, and the gases are intimately mixed and forced by the action of the steam into a holder of any suitable construction. The steam will be condensed in that holder or by the action of any suitable condenser.

I claim as my invention—

1. The combination, with the decomposing-chamber for making non-luminous gas, of a holder for the same, a retort for making olefiant gas, a supply-tank for liquid hydrocarbon to the retort, a gas-pipe and burner for heating such retort, and connecting-pipes and a steam-injector for mixing the gases, substantially as set forth.

2. In the manufacture of illuminating-gas, the combination of a decomposing-chamber for making non-luminous gas, a holder for storing such non-luminous gas, a retort for the production of olefiant gas, an apparatus for supplying liquid hydrocarbon to such retort, a burner or burners for heating such retort by the combustion of non-luminous gas, and means for mixing the non-luminous gas and the olefiant gas in the proper proportion for producing the illuminating-gas, substantially as specified.

Signed by me this 7th day of August, A. D. 1877.

MYRON H. STRONG.

Witnesses:

GEO. T. PINCKNEY,

WILLIAM G. MOTT.