C. M. GEARING.

Gas-Apparatus.

No. 166,603. Patented Aug. 10, 1875.

Fig 1

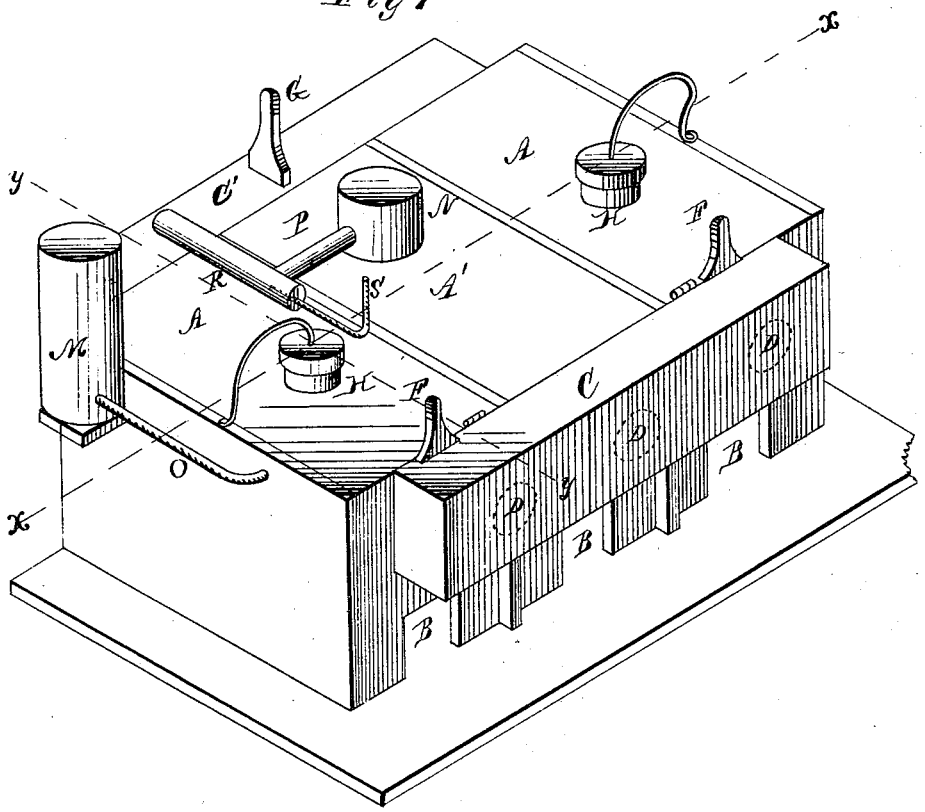


Fig 2

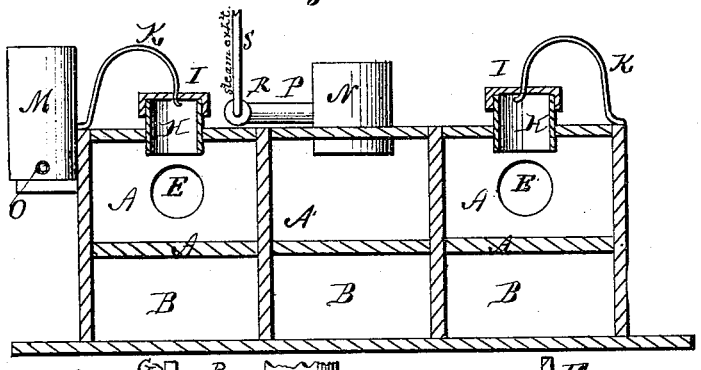
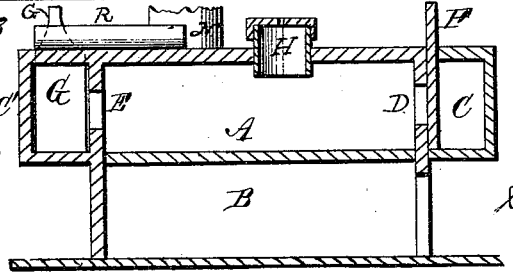


Fig 3



WITNESSES

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CHARLES M. GEARING, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN GAS APPARATUS.

Specification forming part of Letters Patent No. **166,603**, dated August 10, 1875; application filed April 16, 1875.

To all whom it may concern:

Be it known that I, CHARLES M. GEARING, of Pittsburg, in the county of Allegheny and in the State of Pennsylvania, have invented certain new and useful Improvements in Gas-Machine; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in apparatus for making illuminating-gas; its object being to produce such gas by the distillation of coal and petroleum in ovens similar in construction to ordinary coke-ovens adapted to the purpose, a series of such ovens being employed, the whole being connected together by suitable passages, provided with dampers, by means of which any retort of the series may be detached or cut off from the others for the purpose of charging the same with coal, or removing the coke when necessary.

The invention consists of a series of three ovens, arranged side by side over a series of furnaces, and communicating with each other by passages at the ends in such manner that the gas may be made to circulate through the whole before passing to the gas-holder, one or more of said retorts communicating with a reservoir, from which petroleum can be supplied when necessary.

It is intended to employ the ovens alternately for the manufacture of coal and petroleum gas, and run the two together in one holder, in which manner a cheap and good illuminating-gas may be produced.

In the drawings, Figure 1 represents a perspective view of my improved apparatus, and Fig. 2 is a section taken through line *x x* of Fig. 1. Fig. 3 is a section taken through line *y y* of Fig. 1.

The letters A A′ A represent three rectangular ovens, built over the furnaces B B B in the same manner as employed in the construction of the ordinary coke-ovens. Each oven communicates with a passage, C, at one end by means of apertures D D D, and the end ovens with a passage, C′, at the other end by means of apertures E E. The openings or apertures D D of the end ovens are provided with sliding doors or dampers F F, by means of which communication between said passages and the ovens may be cut off when necessary. The passage C′ has a similar damper, G, extending across it, by means of which communication between the two end ovens may be cut off. The end ovens are provided with openings through their tops, indicated by the letters H H, through which they may be charged with coal, said openings being provided with covers I I, secured to the same by means of springs K K. The said ovens are also provided with a reservoir, M, with which they communicate by means of a pipe, O, only one of these reservoirs being shown, however, in the drawing. The central oven is provided with a short pipe, N, from which extends a pipe, P, which enters a pipe, R, leading to the gas-holder. Said pipe has a steam-pipe, S, entering the same at one end, by means of which a current of steam may be admitted, in order to carry off the gas as fast as it is produced.

The end retorts are charged with coal to commence the manufacture of the gas, breeze being usually employed on account of cheapness. Fire is then started in the furnaces, and the gas, as it is produced, is drawn through the ovens, and forced into the gas-holder by means of the current of steam injected into the pipe leading to the same. When the gas is all drawn from the coal, and while the coke is hot, petroleum is admitted to the end ovens and converted into gas, which is drawn through the ovens and forced into the holder as before.

Either of the end ovens may be cut off from the central one, as before stated, the operation being continued in the other when it is necessary to recharge with coal, and the production of gas thus kept up continuously as long as desired.

The furnaces B B B communicate with a smoke-stack or chimney of the usual construction for carrying off the products of combustion, which, being an old and familiar device, it is deemed unnecessary to illustrate in the drawings.

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

The ovens A A′ A, connected together by passages C and C′, as described, and provided with dampers or doors, by means of which either of the ovens may be cut off from the central one for the purpose of providing for the continuous manufacture of gas, as herein described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 31st day of March, 1875.

CHARLES M. GEARING. [L. S.]

Witnesses:
WILLIS W. POWERS,
C. M. ROBINSON.