2 Sheets—Sheet 1.

S. DIESCHER.

COKE-OVEN.

No. 180,010. Patented July 18, 1876.

Fig. 1.

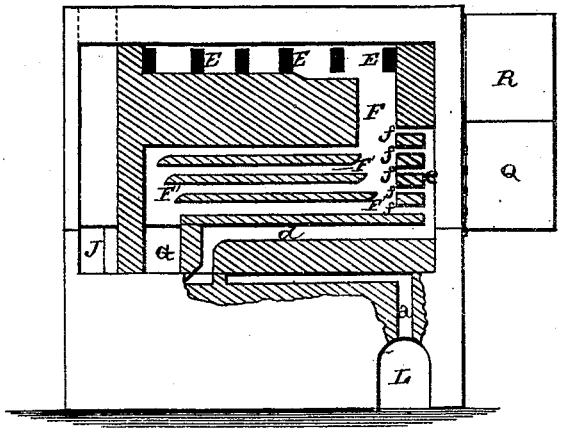


Fig. 2.

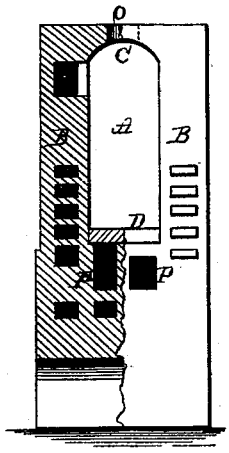


Fig. 3.

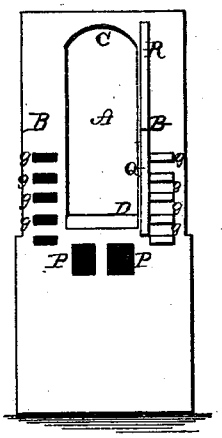
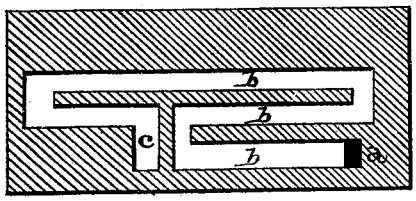


Fig. 4.



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F. A. Lehmann, Atty.

2 Sheets—Sheet 2.

S. DIESCHER.

COKE-OVEN.

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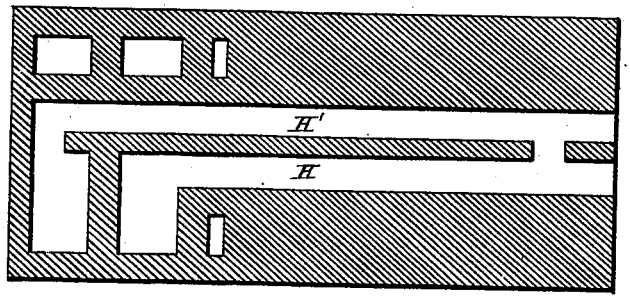
Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL DIESCHER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN COKE-OVENS.

Specification forming part of Letters Patent No. **180,010**, dated July 18, 1876; application filed June 12, 1876.

To all whom it may concern:

Be it known that I, SAMUEL DIESCHER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Coke-Ovens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in coke-ovens; and it consists in the construction and arrangement of gas and air flues for the purpose of cooling by the latter the foundation and lower portions of the brick-work of the ovens, and also for using the air, after becoming heated and intermixed with the gas escaping from the coal during the process of coking, to obtain an intense heat by a thorough combustion of the gas, as will be more fully described hereinafter.

The accompanying drawings represent my invention.

Figure 1 is a side elevation, partly in section. Figs. 2 and 3 are end views, and Figs. 4 and 5 are horizontal sections, of my invention.

A represents the combustion-chamber of the oven, in which the process of coking coal is carried on. B are separation or partition walls between the ovens. C are the arches and D the bottoms of the ovens. E represents openings left below the skew-backs of the arches in the partition-walls for the escape of smoke and gas. F are flues in the partition-walls, into which the openings E discharge the gas; and F′ are a series of smaller flues connected with the former, also in the partition. G represents a chamber, into which the gas and remaining smoke from the smaller flues F′ are collected, and again discharged through the flues H H′ under the bottom D of the ovens into another chamber, J, whence they arise and escape by the chimney.

L represents large horizontal air-flues under the foundation of the ovens, both in front and rear, extending under the whole series of ovens, which flues have openings *a* for each one of the ovens under their separation-walls. The openings *a* lead to the flues *b*, through which the air enters the chamber *c*, and continues by the horizontal flue *d* into the vertical flues *e*, and passes through the flues *f* into the general gas-flue F, intermixing thoroughly with the gas therein, the air having during its passage through the various flues become intensely heated.

Q and R represent the doors in front of the combustion-chamber, the one above the other, working independently on hinges. O are openings in the arch of each oven, for the introduction of coal; and *g g g*, holes in each end of the partition-walls to permit the cleaning of the flues F′. The holes P under the bottom of the ovens are for cleaning the flues H and H′. These holes *g* and P are kept closed by loose brick during the process of coking, and only opened when cleaning the flues is required.

The operation is as follows: A wood-fire is lighted in combustion-chamber, and kept up until its walls and bottom are sufficiently heated to ignite the coal when thrown in through the opening O, which opening, when the oven is charged, is immediately closed. The upper door R is now opened and the coal properly leveled, after which it also is closed, when the process of coking begins. The gas developed from the charge enters the holes E below the skew-backs of the arch, whence it passes downward into the general gas-flue F, and thence into the flues F′, at which point it is mixed with the heated air issuing from the smaller flues *f*. The heated air thus mixed with the gas causes a thorough combustion of the latter, creating an intense heat, which penetrates the brick walls, and contributes considerably to the process of coking which is going on in the combustion-chamber. The gas, while undergoing combustion, passing through the flues F′, enters through the chamber G into the flues H H′ under the bottom D, thus heating both the sides and bottom of the combustion-chamber, and continues its course through the chamber J into the chimney.

By the construction of coke-ovens on the above plan, experience shows a greater quantity of good coke, and a better quality, espe-

cially when the coal used possesses but little bitumen, the want of which makes it almost useless for the production of coke by other means.

Having thus described my invention, I claim—

1. In a coke-oven, the combination of the chamber A, gas-passages E, leading from its top, downwardly-descending combustion-flues F F′, and air-passages *d*, substantially as set forth.

2. In a coke-oven, the air-flues *a b*, chamber *c*, air-passages *d e f*, and combustion-flues F′, substantially as shown.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of May, 1876.

SAMUEL DIESCHER.

Witnesses:
T. F. LEHMANN,
LOUIS SOLMS.