3 Sheets—Sheet 1.

C. TESSIE du MOTAY & E. J. JERZMANOWSKI.

Gas-Generator.

No. 216,119. Patented June 3, 1879.

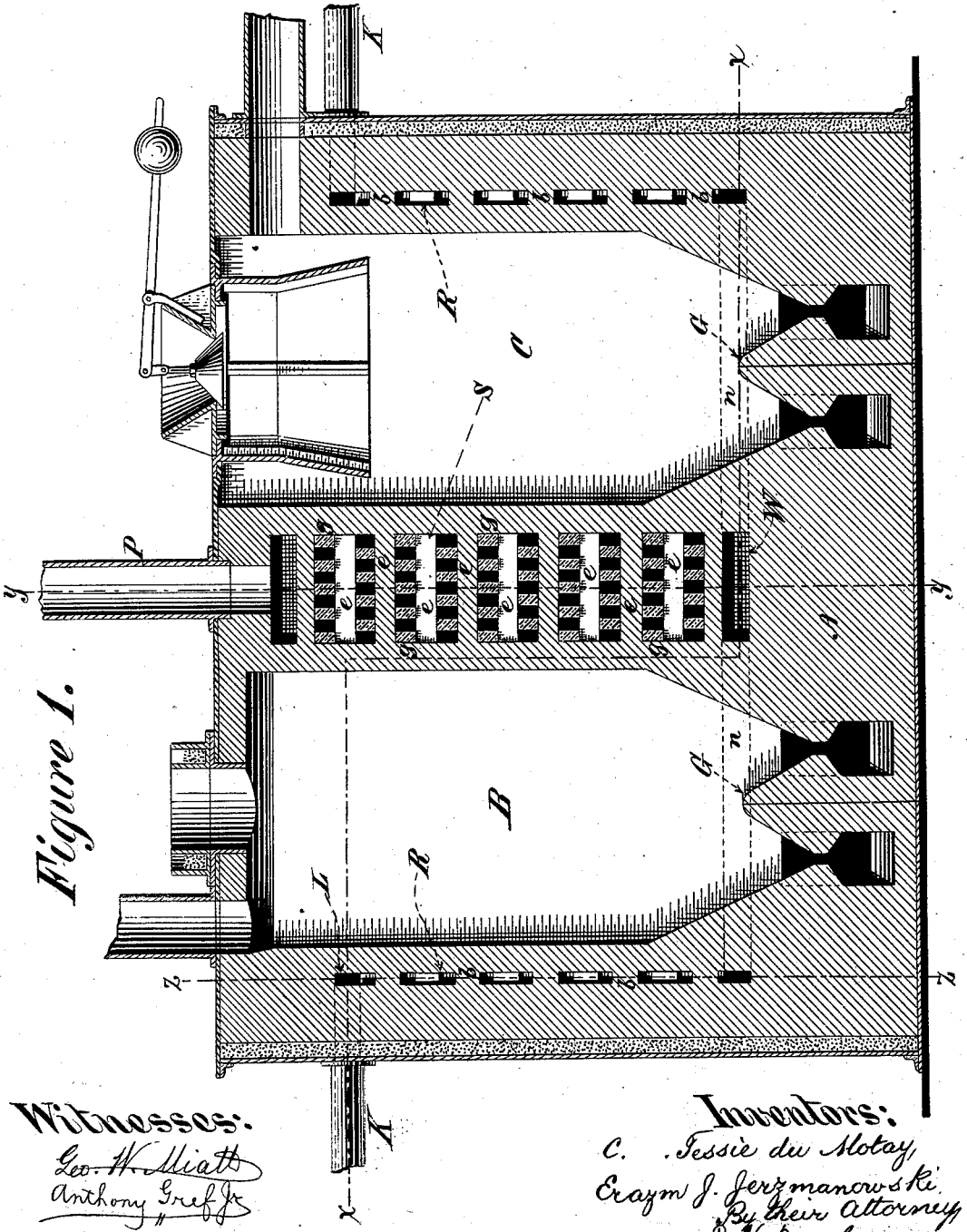


Figure 1.

Witnesses:
Geo. H. Miatt
Anthony Gref Jr.

Inventors:
C. Tessie du Motay,
Eraym J. Jerzmanowski.
By their Attorney
E. N. Dickerson Jr.

3 Sheets—Sheet 2.

C. TESSIE du MOTAY & E. J. JERZMANOWSKI.

Gas-Generator.

No. 216,119. Patented June 3, 1879.

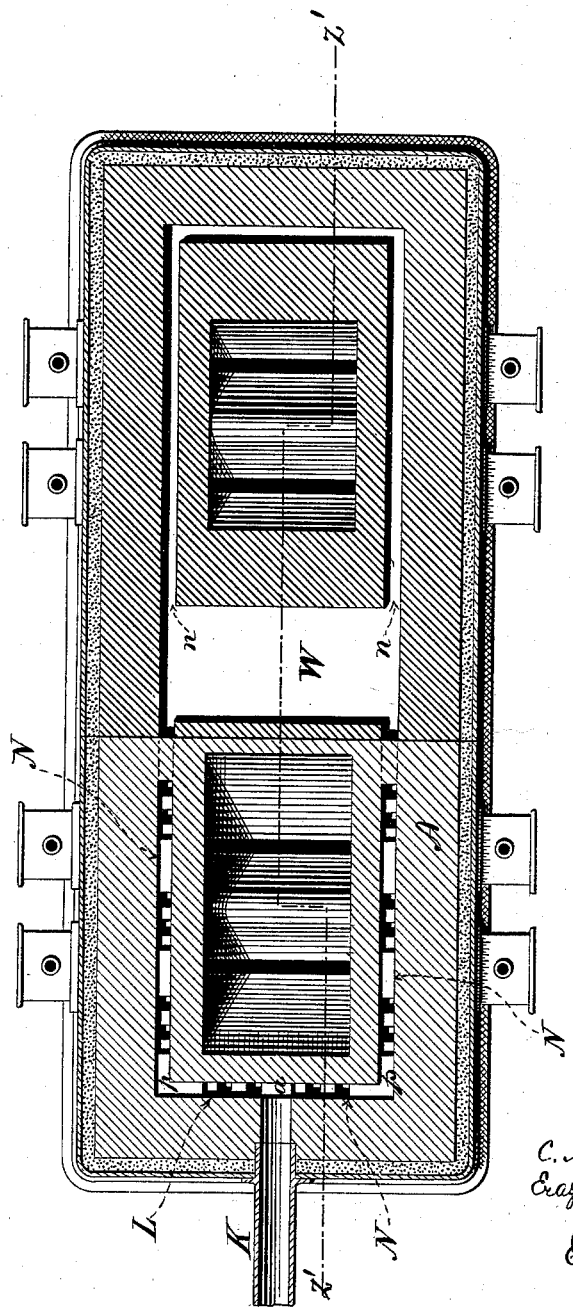


Figure 2.

Witnesses:
Geo. H. Miatt
Anthony Graff Jr

Inventors
C. M. Tessie du Motay,
Eugene J. Jerzmanowski,
By their Attorney
E. N. Dickerson Jr.

3 Sheets—Sheet 3.

C. TESSIE du MOTAY & E. J. JERZMANOWSKI.

Gas-Generator.

No. 216,119. **Patented June 3, 1879.**

Figure 4.

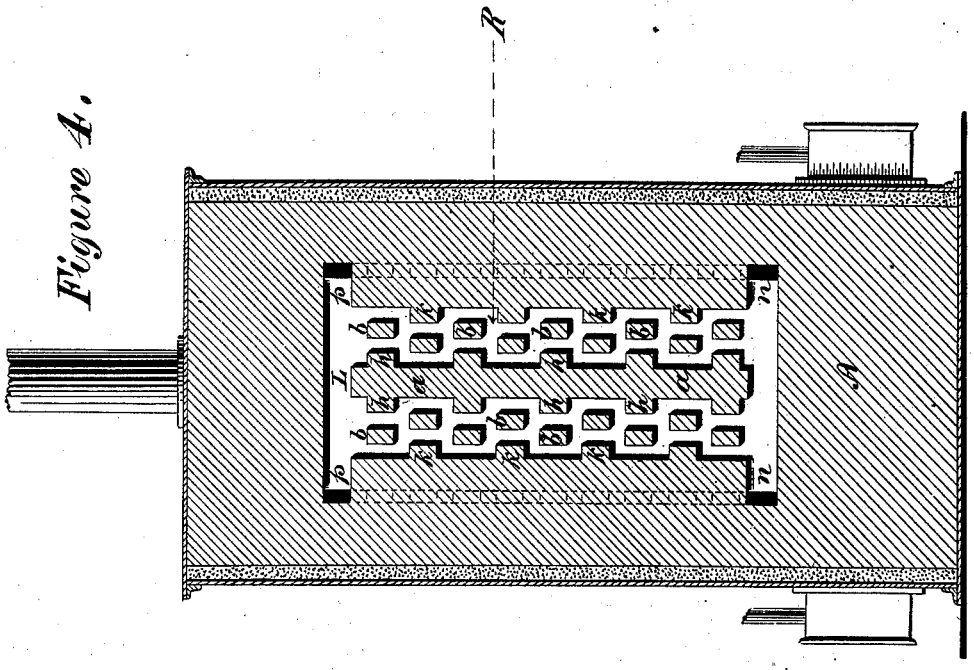
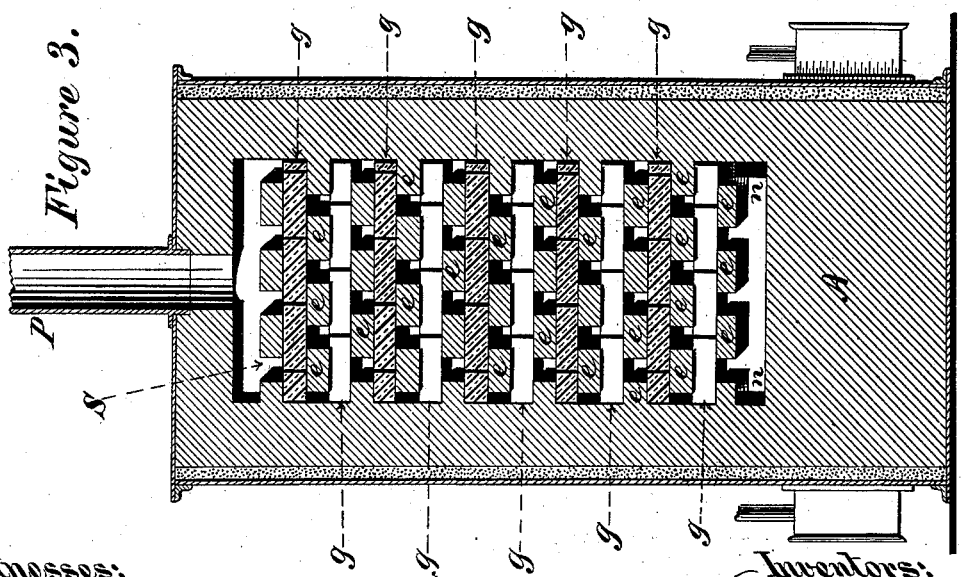


Figure 3.



Witnesses:
Geo. W. Meatt
Anthony Gref Jr

Inventors:
C. M. Tessie du Motay
Eraym J. Jerzmanowski
By their Attorney
E. N. Dickerson Jr

UNITED STATES PATENT OFFICE.

CYPRIEN TESSIÉ DU MOTAY AND ERAZM J. JERZMANOWSKI, OF NEW YORK, N. Y., ASSIGNOR TO EDWARD STERN, OF SAME PLACE.

IMPROVEMENT IN GAS-GENERATORS.

Specification forming part of Letters Patent No. **216,119**, dated June 3, 1879; application filed March 3, 1879.

To all whom it may concern:

Be it known that we, CYPRIEN TESSIÉ DU MOTAY and ERAZM J. JERZMANOWSKI, both of the city of New York, N. Y., have invented a new and useful Improvement in Gas-Generators, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

Our invention has relation to the construction of an improved gas-generator and to superheating contrivances in the walls of the same.

In the arrangement shown, which is the best form known to us, the generator is double, having two independent gas-generating chambers and superheaters arranged in the walls surrounding each of these chambers and in the intervening partition, and the air or steam to be superheated is first passed through the superheaters in the side and end walls of the generating-chambers, and then through the superheaters in the partition separating the same.

In the operations of gas-making, in which currents of heated steam or air are injected into a generating-chamber, it is of the utmost importance that the steam or air enter the generating-chambers as hot as possible; and our contrivance has in view the bringing of said steam or air to the hottest possible condition, and also of enabling a steady heat to be maintained, notwithstanding the fact that one or the other of the generators is out of use; and we have found that a superheating-chamber containing a considerable quantity of cast-iron is very effective in producing this result. The cast-iron so contained in the superheating-chambers is believed to be beneficial from the rapidity with which it receives and parts with its heat, and also from the fact that hot iron becomes readily oxidized, exerting a considerable effect in purifying the gas, if gas is passed through it, and takes from the gas a certain amount of oxygen, thereby reducing it to carbonic oxide.

In the best arrangement shown a double generator is made use of, the walls of each of the generators being filled with superheating-spaces, and the partition between also containing a superheater and the cast-iron bricks referred to.

Our invention will be clearly understood from the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section on the line z' z' through Fig. 2. Fig. 2 represents a horizontal section through Fig. 1, taken on the line x x. Fig. 3 is a vertical section through Fig. 1 on the line y y. Fig. 4 is a vertical section through the line z z.

A represents generally the setting of the two generating-chambers B and C, which may be constructed in any of the well-known forms, and should be provided with conical fire-brick grate-bars G G. One of the chambers is shown closed by a sand-seal, the other by a balanced valve, and this second chamber C is provided with a fuel-supply tube, for a patent for which we have previously applied. Superheating-chambers N are built in the ends and sides of both generators, and are constructed preferably as shown in Fig. 4, in which a represents a central partition provided with longitudinal projections h. Projections k are also provided either in an adjoining partition similar to a or in the brick-work of the apparatus, alternating with the projections h, and blocks b are provided, filling the spaces between the prejections h and the sides and the projections k and the spaces in the central partition, a.

It will thus be seen that the air or steam passing through these channels is necessarily largely diverted from a straight course, and follows a zigzag or irregular direction.

The air or steam enters the superheater through pipes K, and passes into the space L above the superheating-passages. This space is continued by the passages p along the sides of the generator. Having passed downward through the side passages it is delivered into the channel n through the bottom of the generators, and thence passes into the chamber W at the bottom of the separating-partition. This chamber contains a superheater provided with cast-iron blocks, as previously described, and is built up as follows: Transverse brick-work supports e are placed in tiers having their lengths running with the

length of the setting. These square supports are placed alternately, as is clearly shown in Fig. 3. Upon these, and at right angles to them, are laid a series of cast-iron blocks, *g*. These are also laid alternately, as is clearly shown in Fig. 1. The brick-work supports *e* need not be attached permanently to the apparatus, but the whole superstructure may be built up like a series of alternate bricks, each layer resting on the one below. The steam or air passes from the top of this central chamber by pipe P.

It will be seen that the gas passing up this superheater necessarily pursues a very irregular course, and is brought in contact with the highly-heated masses of brick-work and iron, and passes from the pipe P in a very hot condition.

It will also be seen that this superheater will be heated by either of the retorts B or C, but, of course, better when both are in operation.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A double gas-generator provided with a central dividing partition, and with superheating passages in the end and side walls of both superheaters, and with a superheating-chamber in the partition between the two chambers of the double generator, said superheating-chamber in the partition serving to still further superheat the steam, gas, or air which has passed through the superheating-spaces in the other walls, substantially as described.

2. The combination of a gas-generator with a superheating-chamber which contains a superheater consisting of alternate blocks of fire-clay and cast-iron, substantially as described.

3. The combination of the double gas-generator herein described, provided with superheating-chambers in the end and side walls of the same, and with a central superheater in the dividing-partition, which superheater is provided with alternate blocks of fire-clay and cast-iron, substantially as described.

C. TESSIÉ DU MOTAY.
ERAZM J. JERZMANOWSKI.

Witnesses:
S. F. SULLIVAN,
WM. J. SAWYER.