

(No Model.)

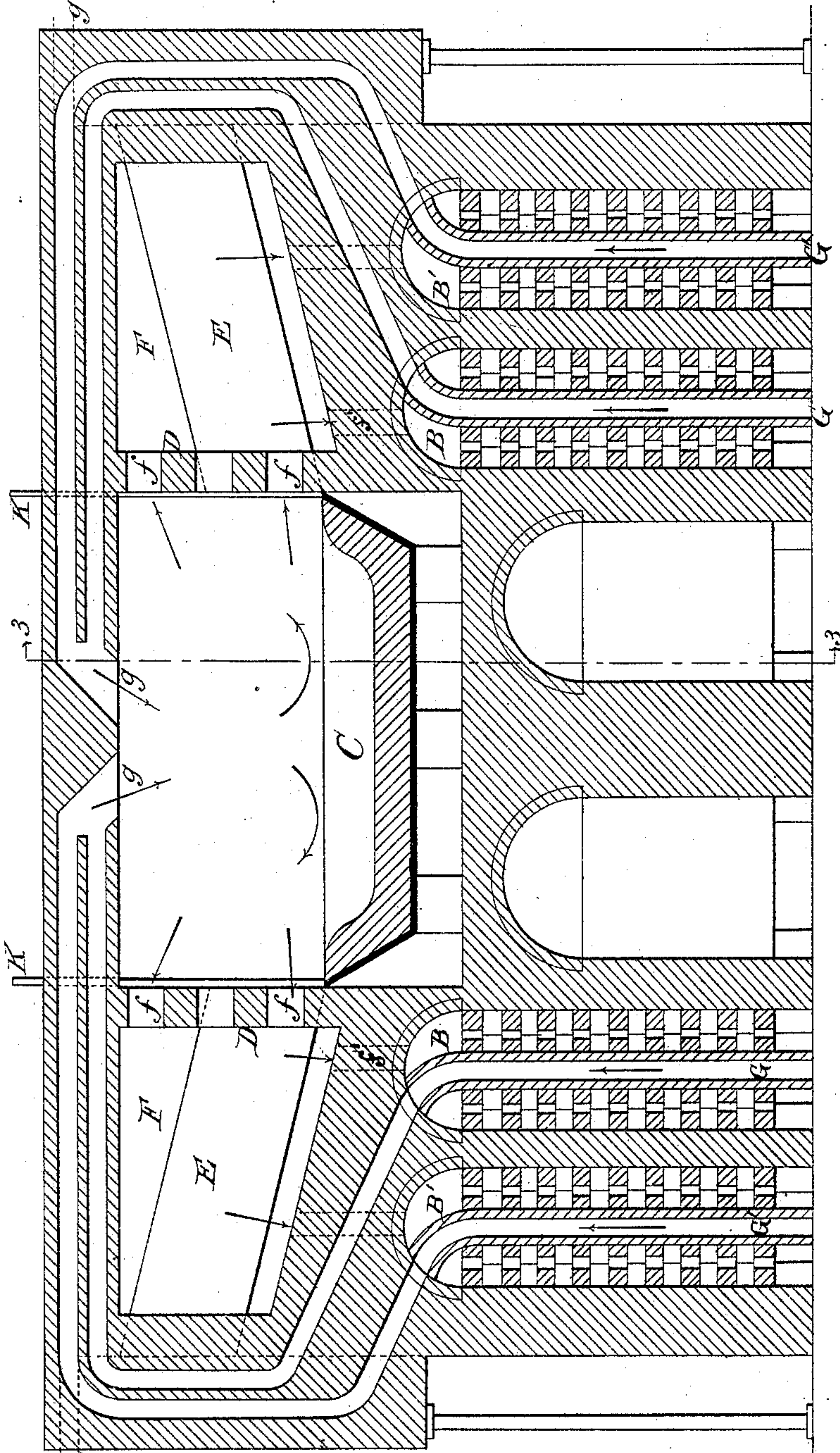
2 Sheets—Sheet 1.

M. R. CONLEY.
METALLURGICAL FURNACE.

No. 540,146.

Patented May 28, 1895.

FIG. 1.



WITNESSES:

George Baumann
Edith J. Griswold

INVENTOR

Michael R. Conley

BY

Horton and Horton
his ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

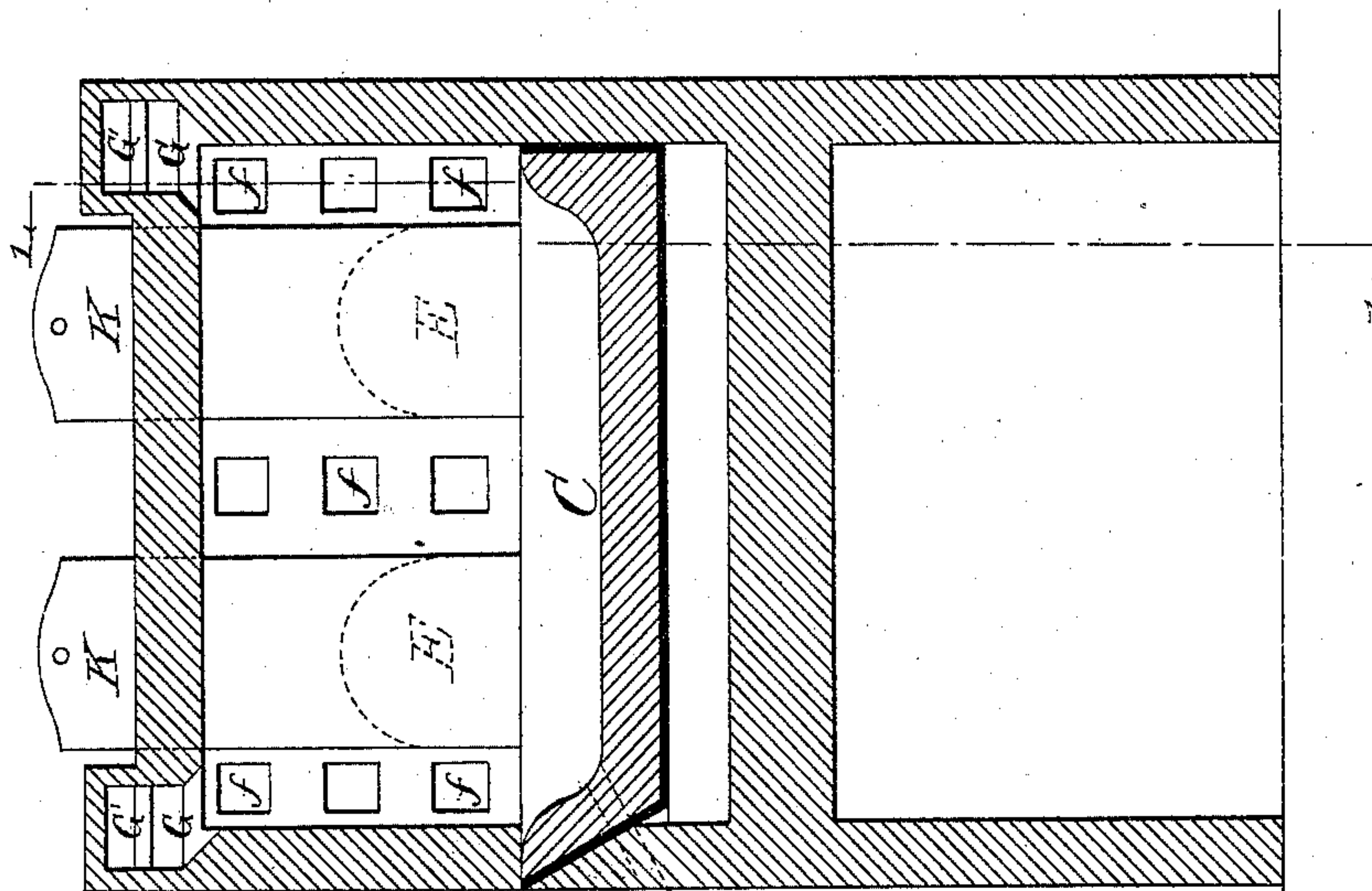
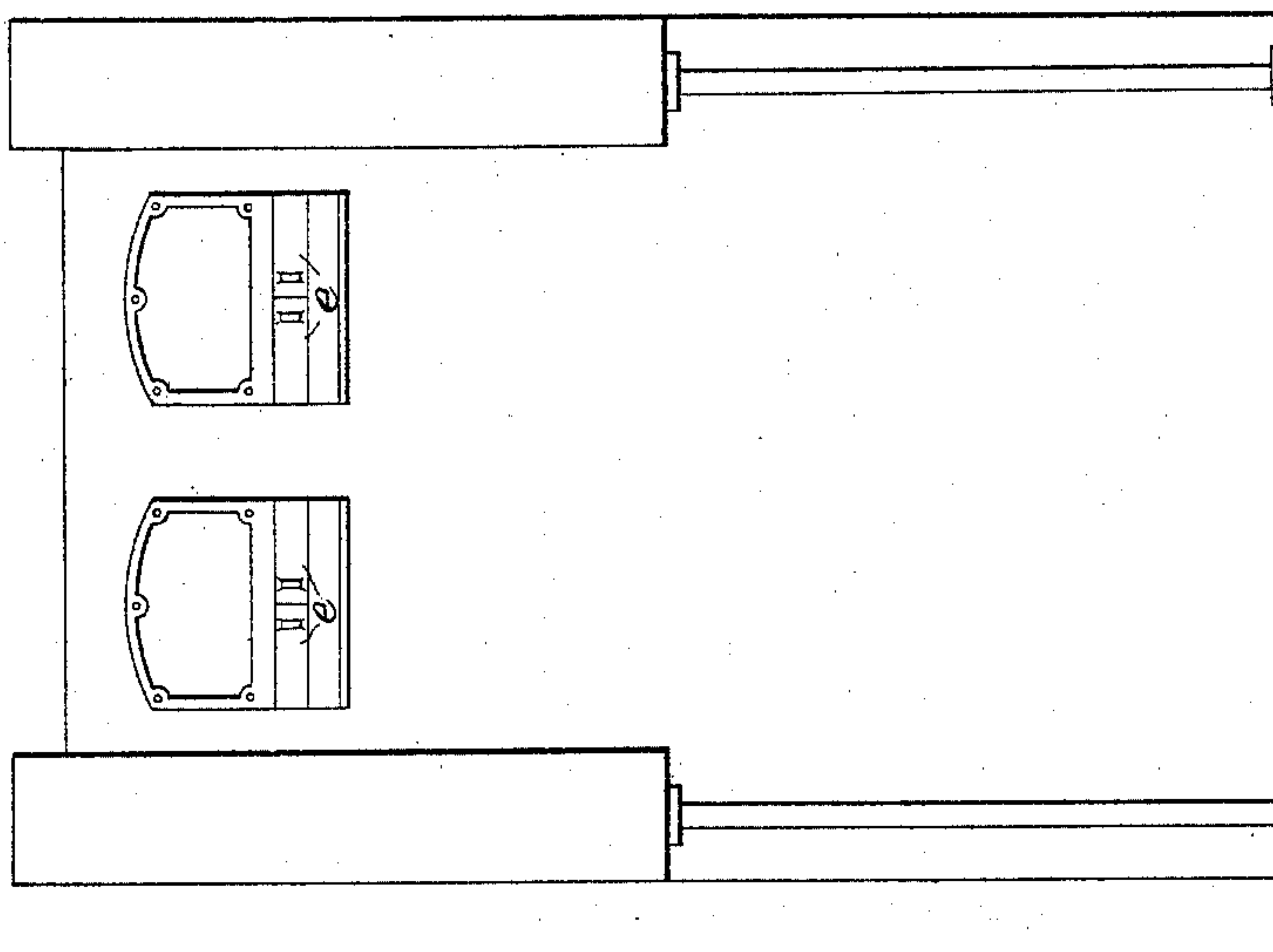


FIG. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MICHAEL R. CONLEY, OF BROOKLYN, ASSIGNOR TO WILLIAM BELL, OF
NEW YORK, N. Y.

METALLURGICAL FURNACE.

SPECIFICATION forming part of Letters Patent No. 540,146, dated May 28, 1895.

Application filed July 12, 1894. Serial No. 517,271. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL R. CONLEY, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have
5 invented Improvements in Metallurgical Furnaces, of which the following is a specification.

The main object of my invention is to construct a reverberatory open-hearth furnace
10 so that it will have a longer life than a similar furnace of the Siemens type in which the flow of gas and air is periodically reversed.

In the accompanying drawings, Figure 1 is a longitudinal section of my improved furnace on the line 1 1, Fig. 3. Fig. 2 is an end
15 elevation; and Fig. 3 is a sectional view on the line 3 3, Fig. 1.

I have shown my invention as applied to that type of furnace for which I obtained
20 Letters Patent No. 477,623, dated June 21, 1892, and for which my present improvement has been more particularly designed.

The furnace has the central open hearth C, and in the extended end walls D D are
25 provided reducing retorts E E, whose inner ends open directly onto the melting hearth, being there preferably provided with suitable gates K. These retorts of which two at
30 each end of the furnace are shown in this instance, are preferably inclined as described in my application filed April 17, 1894, Serial
No. 507,868, and extending to the outside of the end walls are there closed by suitable
35 doors e. Around these retorts are flues F in communication with the melting chamber C through suitable passages f. These flues F lead through suitable down-take flues f', indicated by dotted lines in Fig. 1, to checker-
40 work B B' immediately below the retorts at both ends of the furnace.

I provide inlet flues G G' for the air and gas in the midst of and extending through the checker-work B B', and these flues are carried to the roof of the furnace over the
45 melting hearth where they open out together as at g g'. In the present instance these flues G G' after leaving the checker-work are shown as carried up around the ends of the furnace to the roof, and four such flues are
50 shown at each end, but they may be arranged in any convenient way and in any desired number.

The air and gas are admitted through the flues G G' at both ends of the furnace at the

same time and passing up to the roof of the
55 melting chamber they mix and become ignited at g g. After acting upon the bath in the hearth the products of combustion pass off at both ends of the chamber through the
60 flues around the reducing retorts, containing the ore or other material to be there treated and thence the products of combustion pass down to and through passages B, B', consisting
65 of checker-work where the waste heat is further utilized in heating the incoming air and gas. By arranging this checker-work with the communicating flues extending through
it, immediately below the retorts, I am enabled
70 to utilize the waste heat, while at its hottest, to the best advantage, and furthermore have a compact construction of furnace. In some
cases it may be preferable not to carry the gas
75 flues through the checker-work, but to bring the hot gases directly from the producer to the flues in the roof of the furnace as indicated for instance by dotted lines at g' g' in
Fig. 1.

By the construction described the furnace is subjected to a continuous uniform heat and will last longer as a structure than where the
80 reversing principle is used.

I claim as my invention—

1. A metallurgical furnace having a melting chamber and reducing retorts at opposite
85 ends of the melting chamber, with air and gas flues opening into said chamber, checker-work immediately below said retorts, and outlet flues leading around the retorts to the
checker-work, the air inlet flues extending through said checker-work, substantially as
90 described.

2. A metallurgical furnace having a melting chamber and reducing retorts at opposite
95 ends of the melting chamber with air and gas flues opening into said chamber, checker-work immediately below the retorts and outlet flues leading around the retorts to the
checker-work, the air and gas inlet flues extending through said checker-work, substantially
100 as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MICHAEL R. CONLEY.

Witnesses:

EDITH J. GRISWOLD,
HUBERT HOWSON.