

No. 607,437.

Patented July 19, 1898.

L. J. HIRT.
COKING OVEN.

(Application filed July 20, 1897.)

(No Model.)

2 Sheets—Sheet 1.

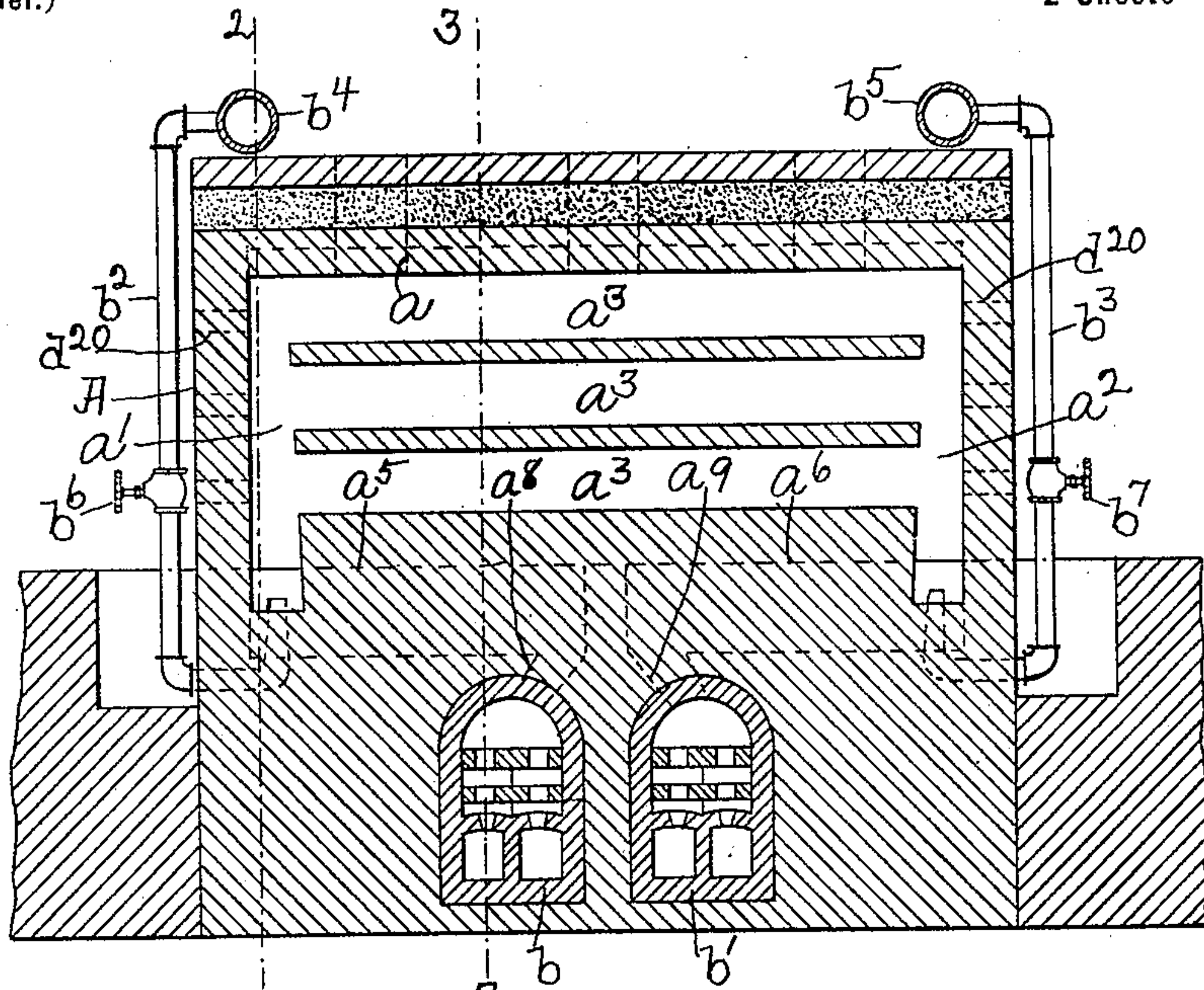


Fig. 1

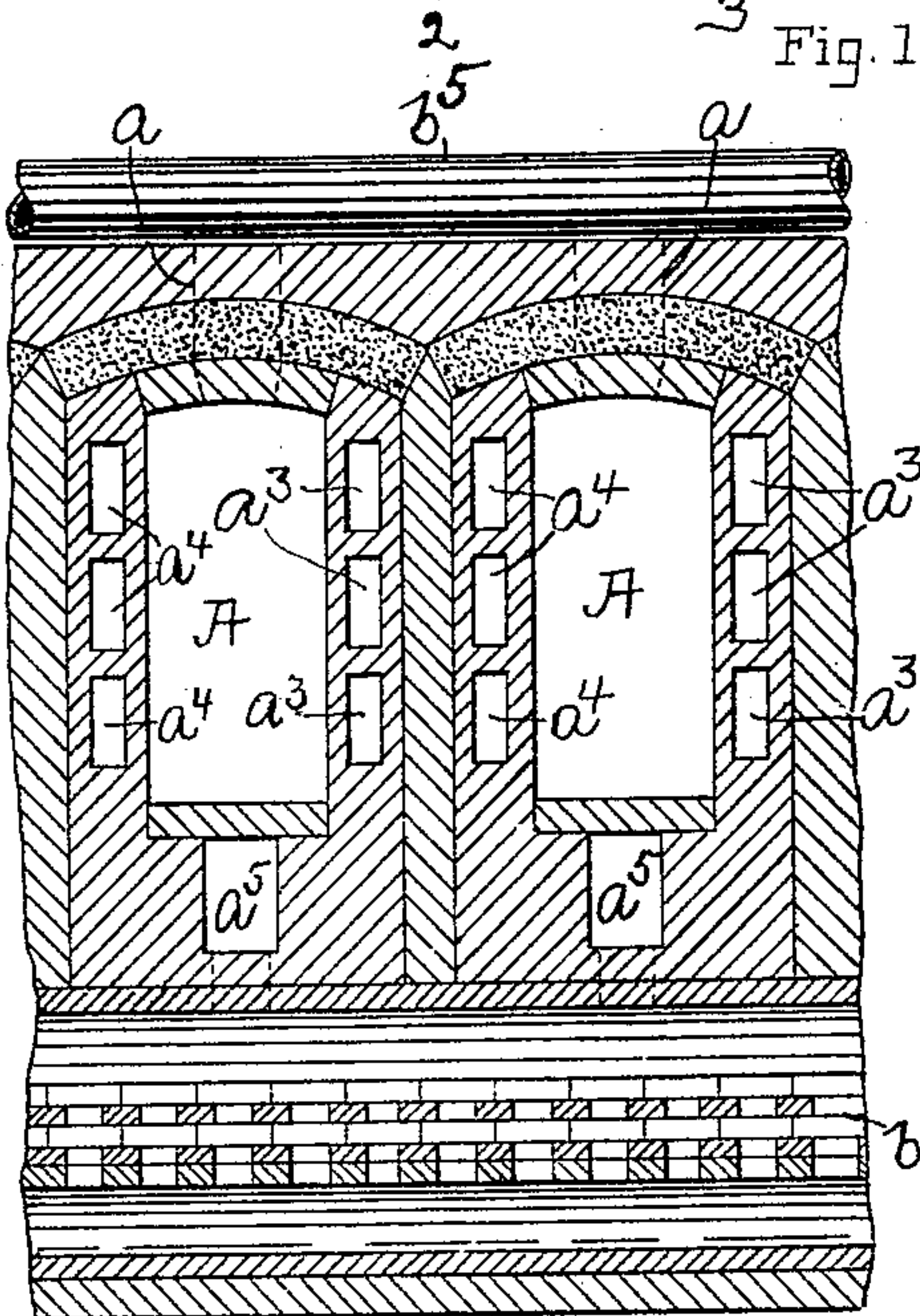


Fig. 3

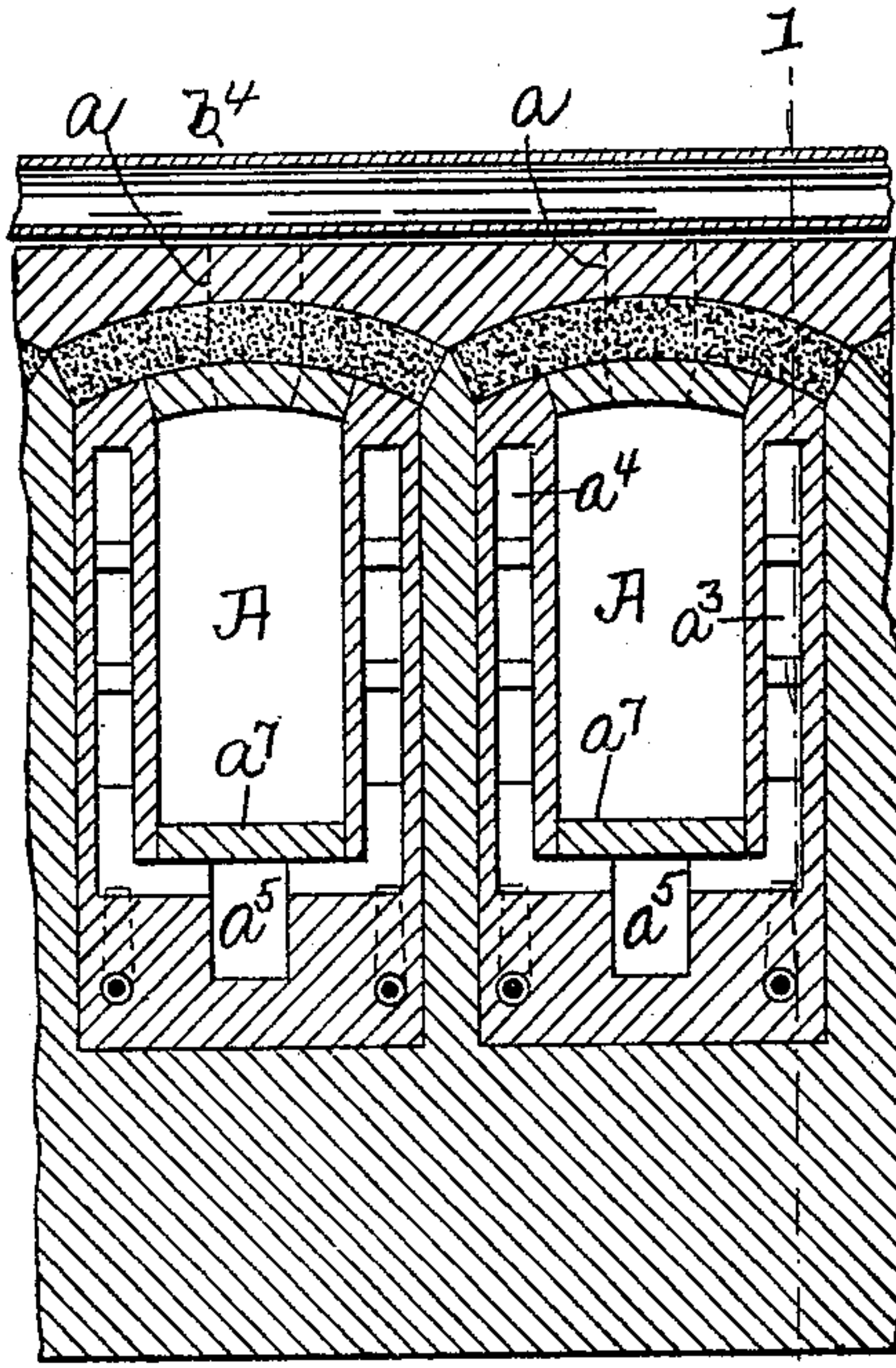


Fig. 2

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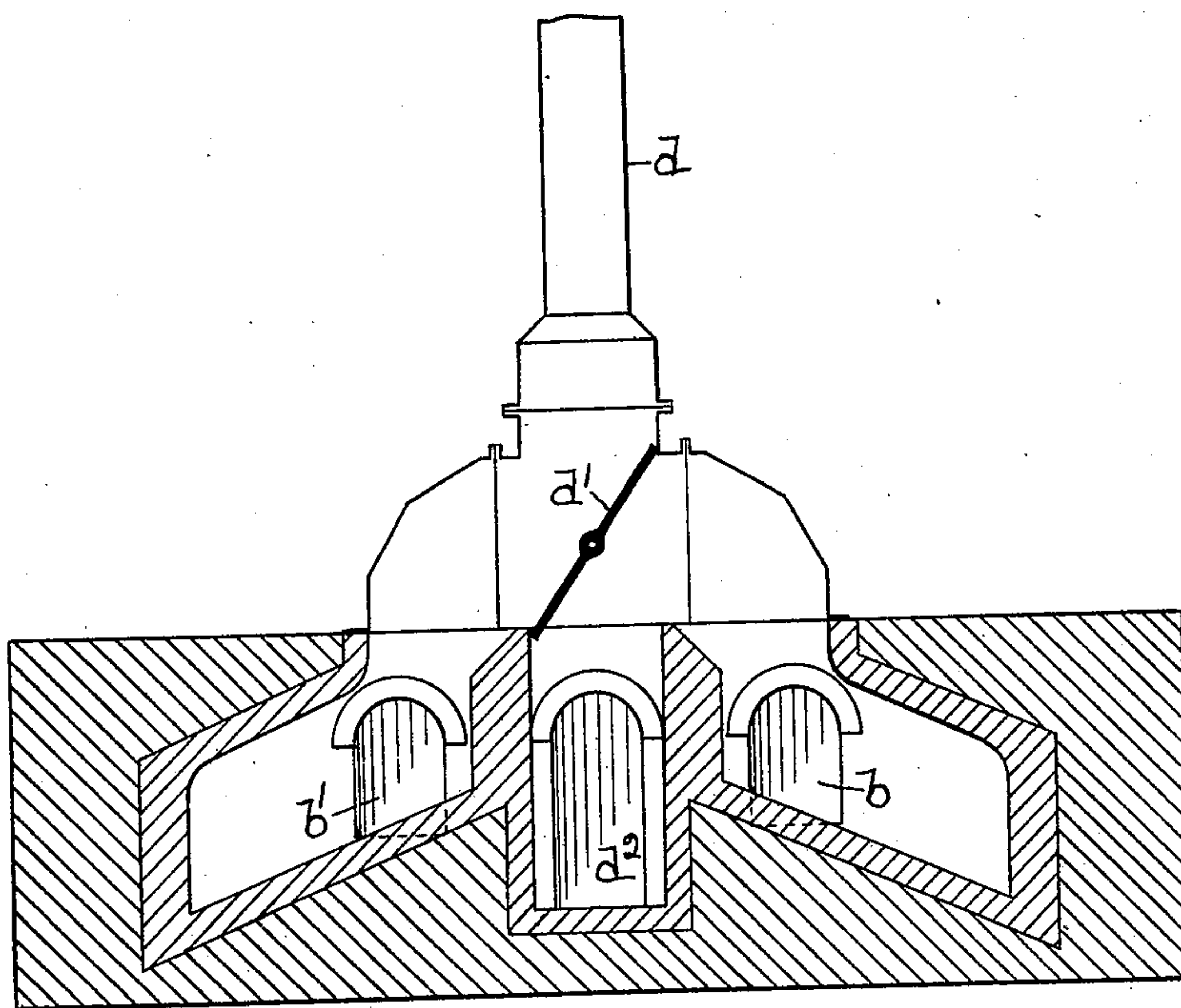


Fig. 4.

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LOUIS J. HIRT, OF BROOKLINE, MASSACHUSETTS.

COKING-OVEN.

SPECIFICATION forming part of Letters Patent No. 607,437, dated July 19, 1898.

Application filed July 20, 1897. Serial No. 645,222. (No model.)

To all whom it may concern:

Be it known that I, LOUIS J. HIRT, residing in Brookline, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Coking-Ovens, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to coke-ovens, and has for its object to improve the construction of the same, whereby an oven of minimum size and maximum efficiency may be obtained.

In accordance with this invention the oven is provided with a series of substantially horizontal flues arranged one above the other on opposite sides of the retort containing the coal to be coked and communicating with vertical end flues, which are connected by horizontal flues extended beneath the bottom or sole of the retort toward the center of the oven and communicating with regenerating-chambers, as will be described.

Figure 1 represents in section a coking-oven embodying this invention, the section being taken on the line 1 1, Fig. 2; Fig. 2, a sectional view of the oven shown in Fig. 1, taken on the line 2 2, Fig. 1; Fig. 3, a section on the line 3 3, Fig. 1; and Fig. 4 a detail to show the manner of reversing the course of the ignited gas and air.

Referring to the drawings, A represents a retort in which the coal to be coked is placed and which is provided with a feed-opening a and with the usual outlets (not herein shown) for the products of distillation.

The retort A, in accordance with this invention, is heated by products of combustion created by burning gas supplied to vertical flues $a' a^2$, wider than the said retort and communicating with a series of horizontal flues $a^3 a^4$, arranged one above the other on opposite sides of the retort A and extended the length of the said retort. The vertical end flues $a' a^2$ communicate at their bottom with horizontal flues $a^5 a^6$, extended from substantially the transverse center of the vertical end flues beneath the sole or bottom a^7 of the retort and toward the longitudinal center of the said retort, where they are connected by passages $a^8 a^9$ (see dotted lines, Fig. 1) to regenerators $b b'$ of any suitable or desired construction. The gas for generating the heat is

supplied to the flues $a' a^2$, as herein shown, by pipes $b^2 b^3$, connected with supply-pipes $b^4 b^5$ and provided with valves $b^6 b^7$ and having their outlet ends extended through the walls of the oven into the flues $a' a^2$ at their bottom. The air to support combustion is admitted first through one regenerator and then through the other from a common supply-pipe d , connected to both regenerators $b b'$ and provided with a valve d' , (see Fig. 4,) which connects the air-pipe first with one regenerator, as b , and then with the other, b' , and which at the same time connects first one regenerator, as b , and the other, b' , with a passage d^2 , leading to the chimney or stack. (Not herein shown.) The manner of reversing the air and gas currents shown in Fig. 4 is old and forms no part of my present invention.

In operation gas is admitted into one of the vertical flues, as a^2 , where it meets the heated air from the regenerator b' and ignites and then passes through the horizontal flues $a^3 a^4$ in contact with the sides of the retort A, throughout the length of the same to the vertical flue a' , from which it passes beneath the sole of the retort, through the flue a^5 , to the regenerator b , from which it passes to the passage d^2 , leading to the chimney. After running the burning gas in the direction described for a predetermined length of time—say one hour—the course of the burning gas is reversed by closing the cock or valve b^7 in the pipe b^3 and opening the cock or valve b^6 in the pipe b^2 , and at the same time the valve d' , controlling the regenerators, is reversed, so as to connect the air-supply pipe d with the regenerator b and to connect the regenerator b' with the chimney. The air is admitted into the regenerator b and an outlet is afforded for the regenerator b' , the burning gases in this case passing up the vertical flue a' , through the horizontal flues $a^3 a^4$, down the vertical flue a^2 , into the flue a^6 beneath the sole of the retort and out through the regenerator b' .

From the above description it will be seen that the retort A is heated on both sides, under its bottom, and at its opposite ends, and that the products of combustion travel the entire length of the retort in one continuous course, and by the construction of coking-oven herein shown I obtain the advantage of

the horizontal flues for the better distribution of the heat around the retort and the advantage of the reversal of the heat by means of the vertical flues connected to the
5 regenerators through the flue beneath the sole of the retort, so that a maximum coking effect may be obtained with an oven of minimum size and with a minimum amount of fuel.

10 In practice a series of the ovens will be included in one structure, and the end walls of the ovens may be provided with sight-openings d^{20} . (Indicated by dotted lines.)

I claim—

15 1. A coking-oven comprising a retort, a series of substantially horizontal flues arranged one above the other on opposite sides of the retort and extended substantially the length of the retort to form a continuous passage
20 for the heat from end to end of the retort, vertical flues communicating with said horizontal flues at the opposite ends of the same, regenerators located below the retort near its longitudinal center, and substantially hori-

zontal flues beneath the sole of the retort and 25 connecting said end flues with said regenerators, substantially as described.

2. A coking-oven comprising a retort, a series of substantially horizontal flues arranged one above the other on opposite sides of the 30 retort and extended substantially the length of the retort to form a continuous passage for the heat from end to end of the retort, vertical flues communicating with said horizontal flues at the opposite ends of the same, 35 substantially horizontal flues communicating with the end flues and extended below the sole of the retort toward its center, and regenerators connected to said sole-heating flues, substantially as described. 40

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

LOUIS J. HIRT.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.