

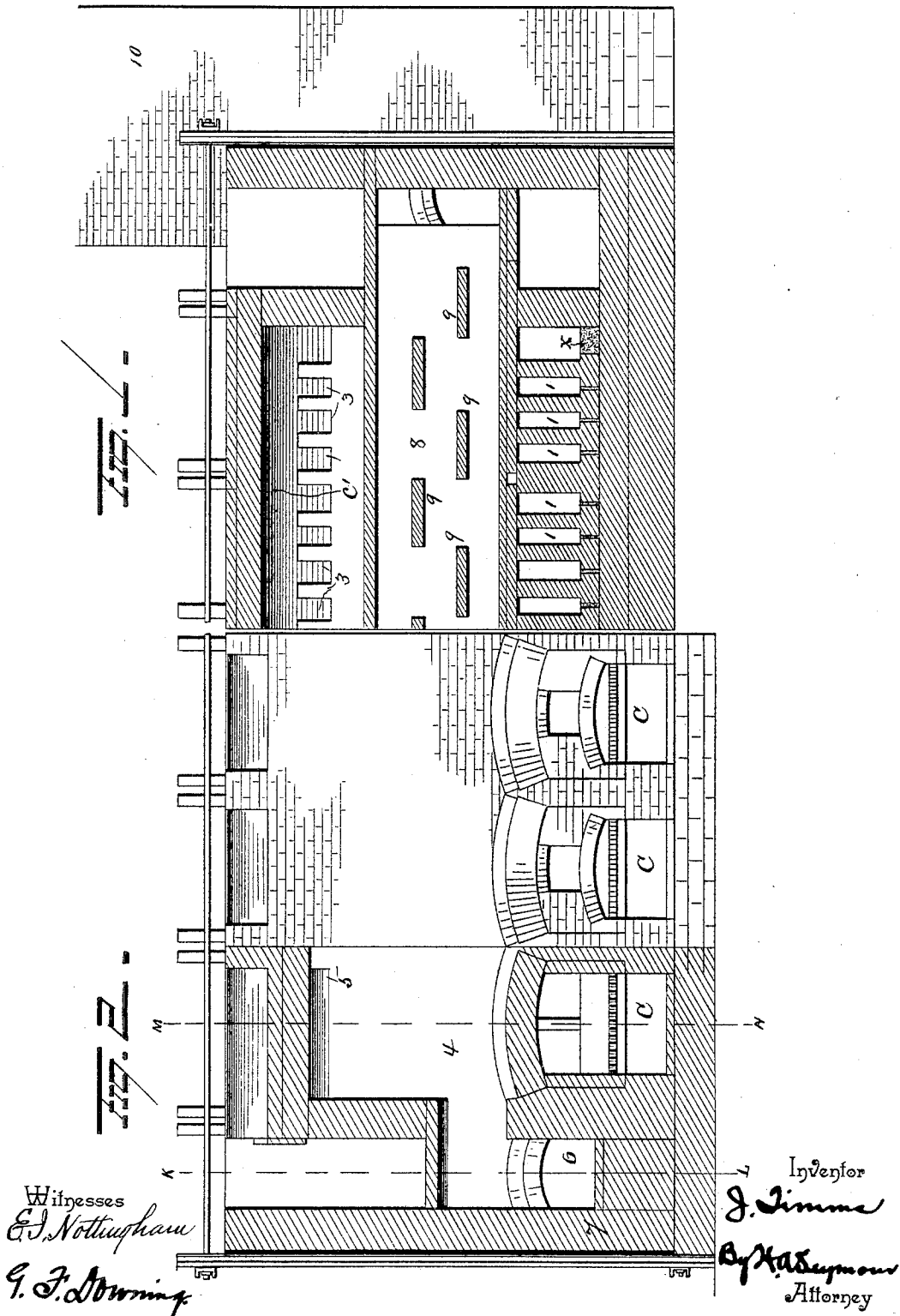
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4 Sheets—Sheet 1.

J. TIMMS.
ANNEALING FURNACE.

No. 586,883.

Patented July 20, 1897.



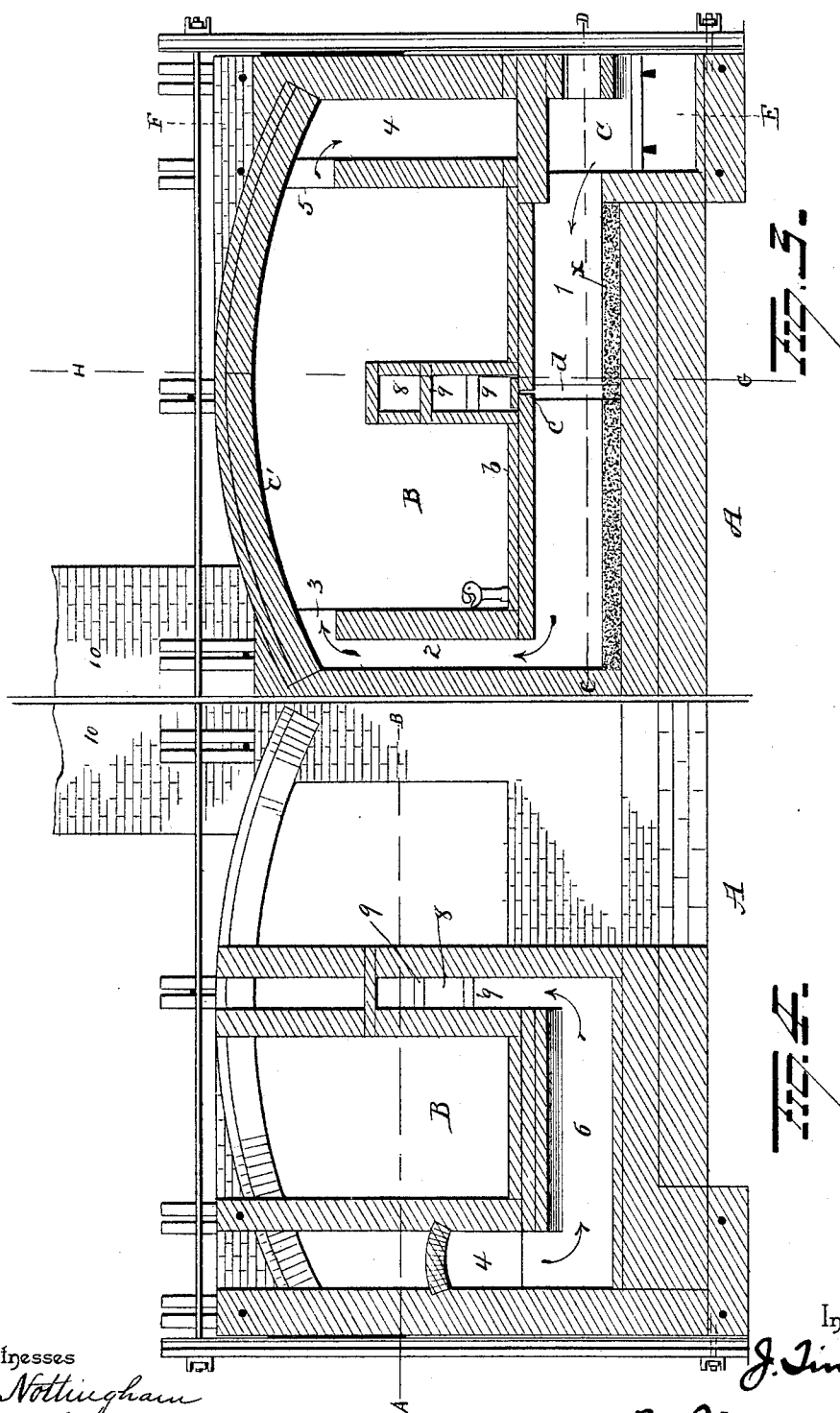
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4 Sheets—Sheet 2.

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Witnesses
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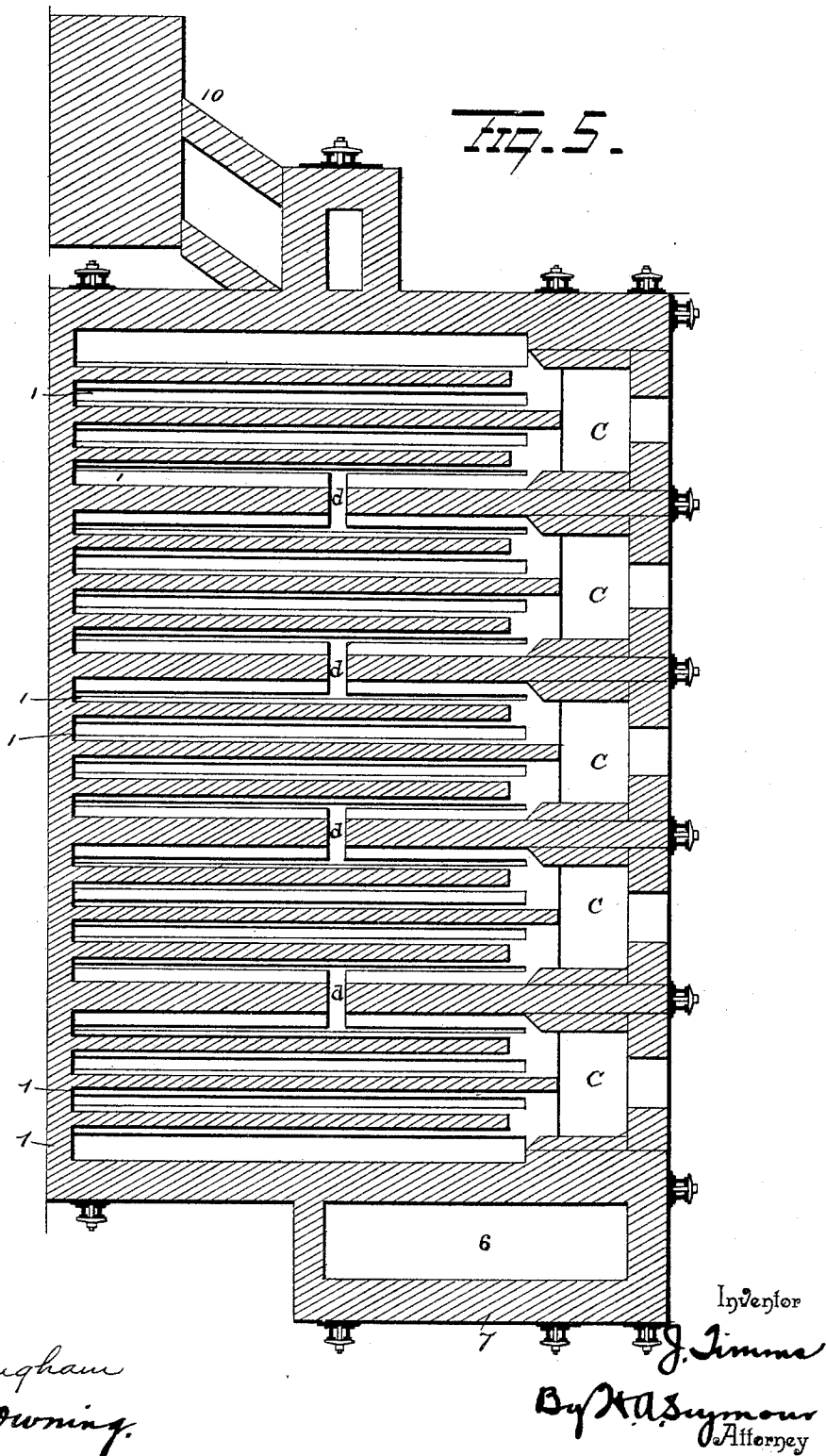
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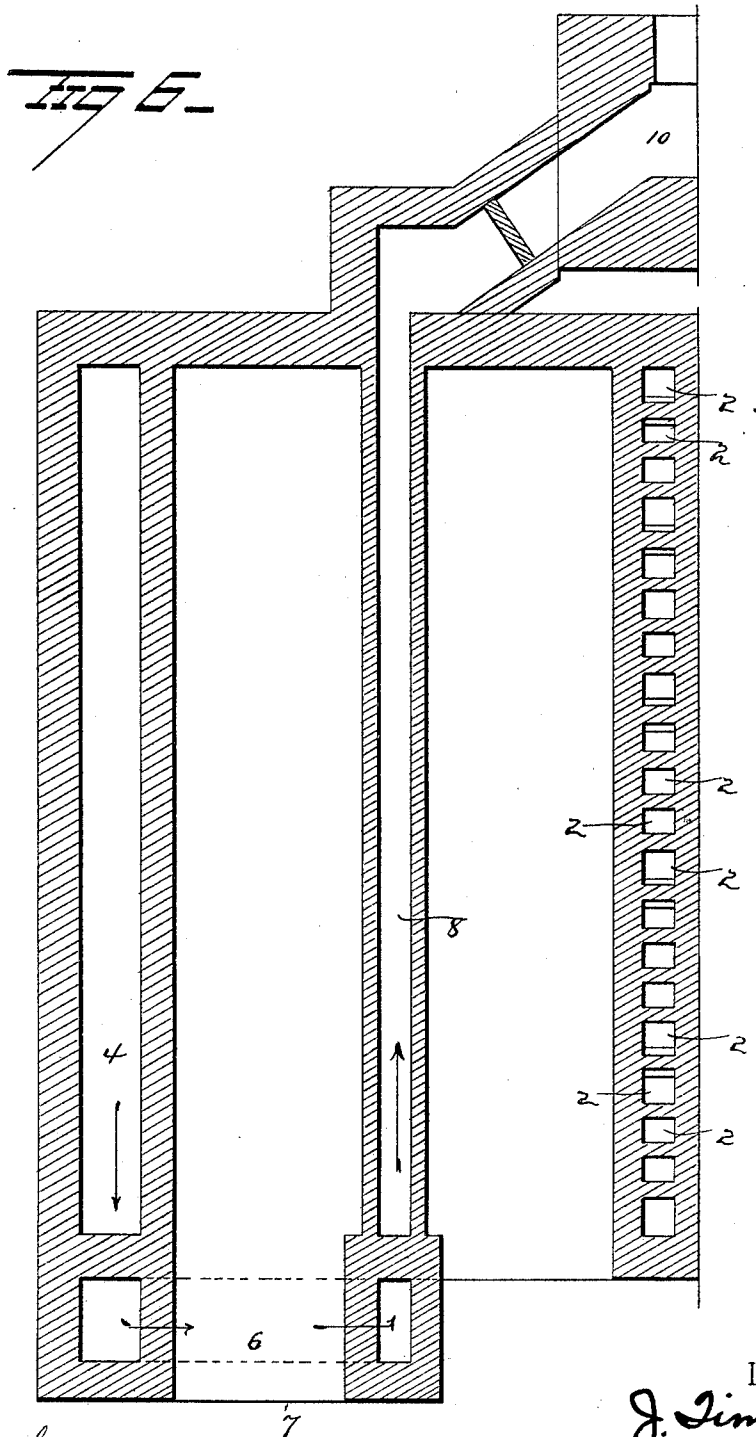
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UNITED STATES PATENT OFFICE.

JAMES TIMMS, OF COLUMBUS, OHIO.

ANNEALING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 586,883, dated July 20, 1897.

Application filed February 13, 1897. Serial No. 623,282. (No model.)

To all whom it may concern:

Be it known that I, JAMES TIMMS, a resident of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Annealing-Furnaces; 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 appertains to make and use the same.

My invention relates to an improvement in annealing-furnaces, the object of the invention being to so construct the furnace that the oven can be quickly and efficiently heated uniformly by the consumption of a minimum amount of fuel.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a partial longitudinal view taken on line G H of Fig. 3. Fig. 2 is a partial sectional view on the line E F of Fig. 3. Fig. 3 is a sectional view on the line M N of Fig. 2. Fig. 4 is a sectional view on the line K L of Fig. 2. Fig. 5 is a horizontal sectional view on the line C D of Fig. 3. Fig. 6 is a horizontal sectional view on the line A B of Fig. 4.

A represents a suitable base, and B the annealing-oven.

In the front part of the furnace a series of fire-chambers or furnaces C are located, each of which communicates with a series of flues 1, disposed between the base A and the floor b of the oven B, the walls of said flues being made with expansion-spaces c d. The flues 1 have some refractory material x, such as sand, in the bottom. The forward ends of the flues 1 communicate with a corresponding number of vertical flues 2, which extend to the crown c' of the oven, where they discharge through openings 3 into the oven B. The products of combustion, after passing through the flues 1 2 and the upper portion of the oven B, enter a flue 4 through openings 5 in the vertical wall of the oven. The flue 4, it will be observed, is directly over the fire-chambers or furnaces C, and the products of combustion will therefore be so highly heated that the gases will become ignited as they pass through said flue 4. From the flue 4 the products of combustion pass through

a short flue 6, located within a structure or enlargement 7 at one end of the furnace structure, and from said short flue the heated products of combustion pass into a flue 8, which extends the full length of the furnace structure and directly through the center of the oven B, thus effectually heating the center of the oven. The flue 8 is preferably provided with a number of radiators 9, of masonry, and the said flue 8 discharges into the stack 10.

By the construction above set forth the annealing-oven B can be thoroughly and uniformly heated and the annealing process can be effectually accomplished with the expenditure of a comparatively small amount of fuel.

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

1. In an annealing-furnace, the combination with a fire-chamber, and oven, of a flue extending from the fire-chamber beneath the floor of the oven and upward within one side wall of the furnace and discharging into the top of the oven, and a flue leading from the top of the furnace downward over the fire-chamber, a flue beneath the oven to which this last-mentioned flue leads, and a flue extending through the oven to which the flue beneath the oven leads.

2. In an annealing-furnace, the combination with a series of fire-chambers and an oven, of a series of flues communicating with each fire-chamber and located under the floor of the oven, vertical flues at one side of the oven and communicating with said first-mentioned flues, said vertical flues discharging into the upper part of the oven, a flue located over the series of fire-chambers which receives products of combustion from the oven, a flue extending through the oven in communication with the flue over the fire-chambers and receiving products of combustion therefrom and a stack communicating with the flue in the oven, substantially as set forth.

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

JAMES TIMMS.

Witnesses:

R. S. FERGUSON,
S. G. NOTTINGHAM.