

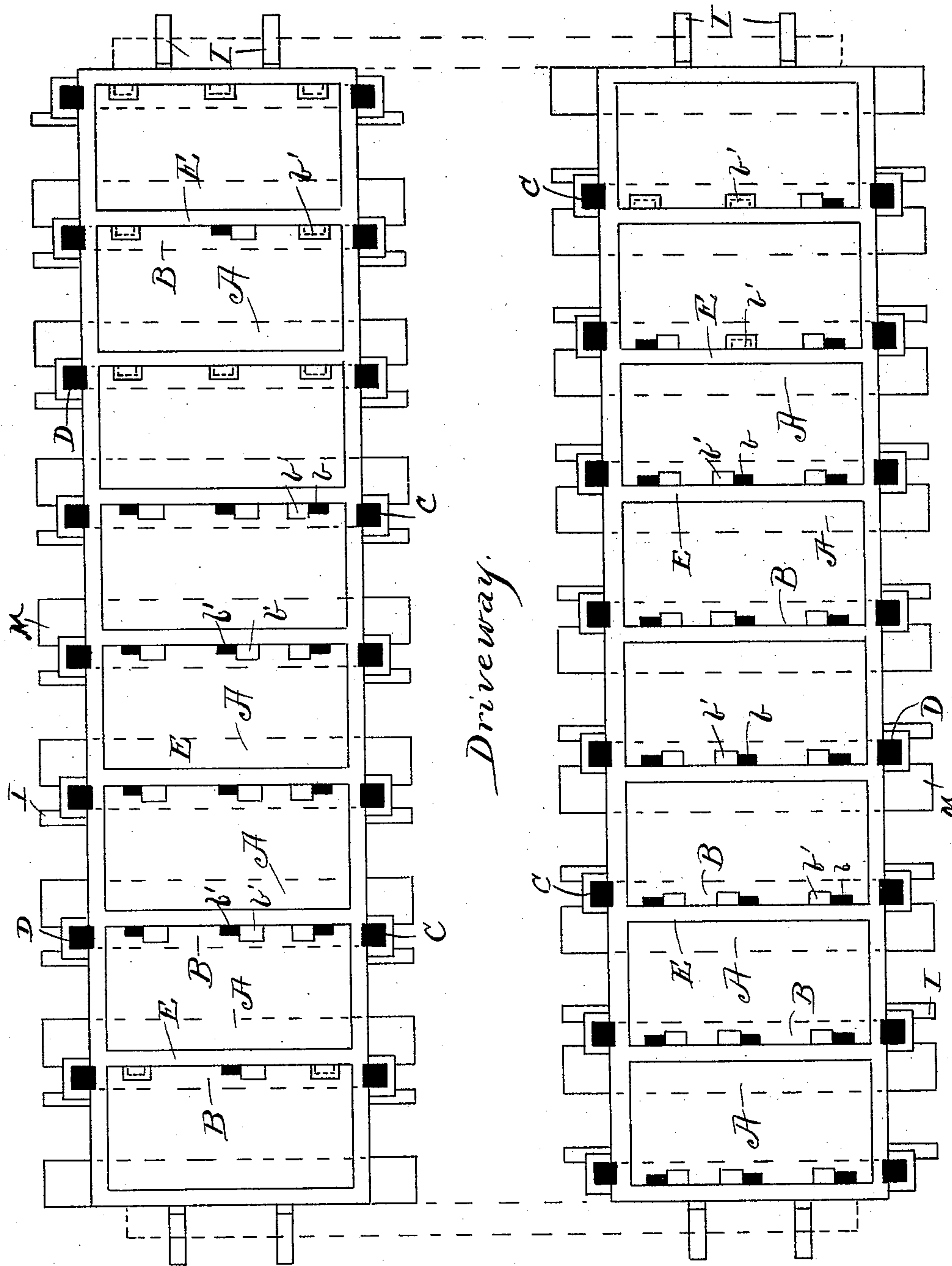
(No Model.)

3 Sheets—Sheet 1.

J. W. PENFIELD.  
BRICK KILN.

No. 465,288.

Patented Dec. 15, 1891.



Witnesses.  
E. B. Gilchrist  
*[Signature]*

Fig. 1.

Inventor  
James W. Penfield  
By *[Signature]*  
Attorney





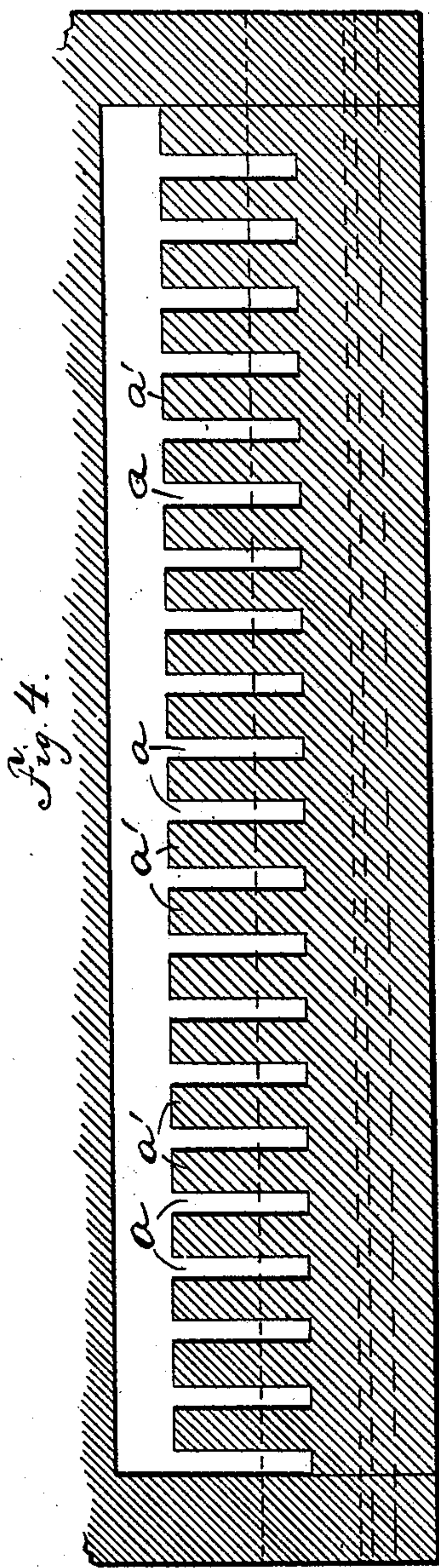
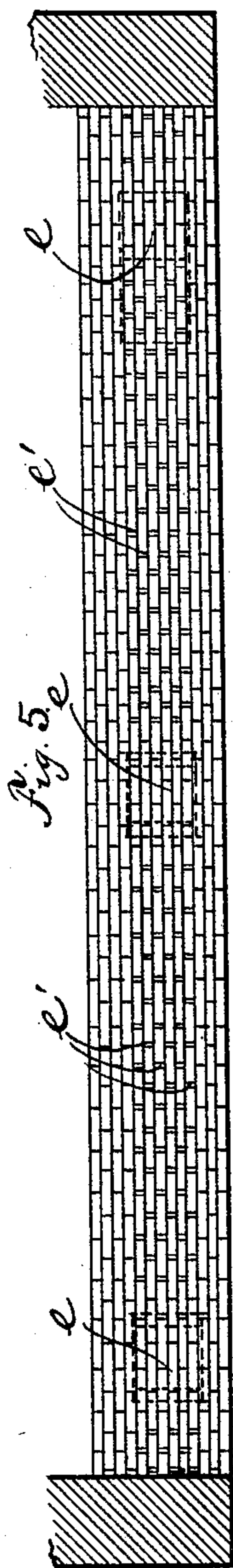
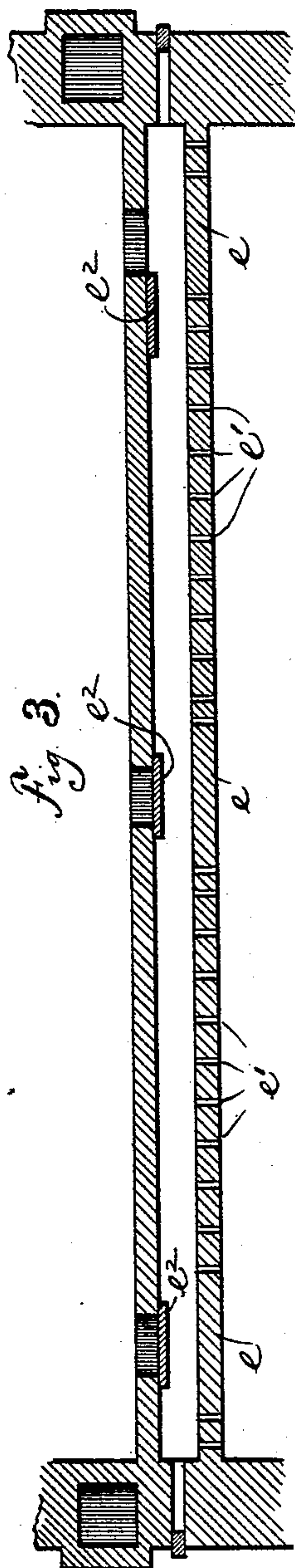
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INVENTOR.

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attorney



# UNITED STATES PATENT OFFICE.

JAMES W. PENFIELD, OF WILLOUGHBY, OHIO.

## BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 465,288, dated December 15, 1891.

Application filed August 18, 1891. Serial No. 403,033. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. PENFIELD, of Willoughby, in the county of Lake and State of Ohio, have invented certain new and useful Improvements in Brick-Kilns; 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 the same.

My invention relates to improvements in brick-kilns of the variety known as "continuous-burning" kilns; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a plan taken at the floor-line. Fig. 2 is an enlarged elevation in longitudinal section showing more especially the partition or cross-wall E. Fig. 3 is a horizontal section on line *x x*, Fig. 2, extending lengthwise a wall E. Fig. 4 is an enlarged horizontal section on line *y y*, Fig. 2, and extending lengthwise the furnace. Fig. 5 is an elevation showing a portion of the right-hand face of a wall E relative to Fig. 2.

In constructing a brick-kiln according to my invention a rectangular plat of ground is leveled off and divided into two equal sections by a driveway, and each section is provided with a series of furnaces A, extending crosswise the plant, each furnace having an adjacent co-operating flue B, extending parallel therewith, a flue and furnace being separated, say, sixteen inches, more or less, or the thickness of a partition-wall E that is to be built between the line of a flue and furnace. The one side of the arch of a furnace is solid, as at A', while the other side of the furnace-arch has a series of openings *a*, alternating with solid sections *a'*. Openings *a* lead into the compartment above the furnace and lead, also, into the adjacent flue B, the latter having vertical openings *b*, leading through the floor and closed by dampers *b'*. When dampers *b'* are closed, all the products of combustion from a furnace must pass through openings *a* into the compartment above such furnace, except what is necessary to fill the flue

B; but when these dampers *b'* are opened the products of combustion may take either course, and as a natural consequence a part enters the compartment above the flue and a part enters the compartment above the furnace. When, for instance, there is no fire in the furnace, and the doors of the furnace being closed, the hot air from a compartment may pass through openings *a* into the next adjacent flue B, and from thence may pass into the compartment above the flue. Flues B at one or both ends connect with chimneys D, the latter being provided with dampers at *c* for regulating the communication between a flue B and its chimney. The partition or cross-walls E are supposed to divide the sections of the plant into equal compartments, these walls and the arches above and the side and the end walls of the kiln all being permanently built with suitable doorways, as shown in the side walls, to give access to each compartment. Each cross-wall E—say about half-way up the wall—has a horizontal flue E' constructed therein. Openings E<sup>2</sup> are located, preferably, above openings *b* aforesaid, and, on the same side of the cross-wall, lead into flue E, and the opposite side wall of this flue is divided into solid sections *e* and checker-work *e'*, (see Figs. 3 and 5,) the solid sections being directly opposite openings E<sup>2</sup>. Inside of flue E' are flat tiles *e*<sup>2</sup> set edgewise and serving as dampers for closing, or partially closing openings E<sup>2</sup>. The arrangement of solid wall and checker-work shown distributes the heat well into the adjoining compartment that receives the heat. Loose bricks are left in either side wall opposite the flue E', by removing which a rod may be inserted to shift dampers *e*<sup>2</sup>.

What I claim is—

A brick-kiln comprising a series of compartments with corresponding series of furnaces and flues, a furnace and co-operating flue communicating with each other and communicating with the compartments, respectively, above such furnace and flue, the division-wall between compartments having a horizontal flue constructed therein and having a series of openings communicating with

the adjacent compartments, the openings from one compartment into the flue being located between the openings from the flue into the other compartment, the wall opposite the induction-openings being solid with checker-work between such solid section of the wall, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 25th day of July, 1891.

JAMES W. PENFIELD.

Witnesses:

C. H. DORER,  
WARD HOOVER.