E. B. CASSIDY.
Bakers' Oven.

2 Sheets—Sheet 1.

No. 220,898. Patented Oct. 21, 1879.

Fig. 1

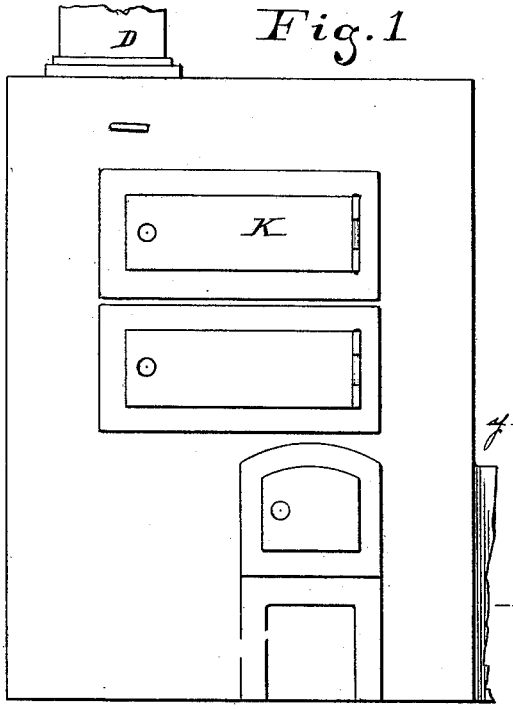

Fig. 2

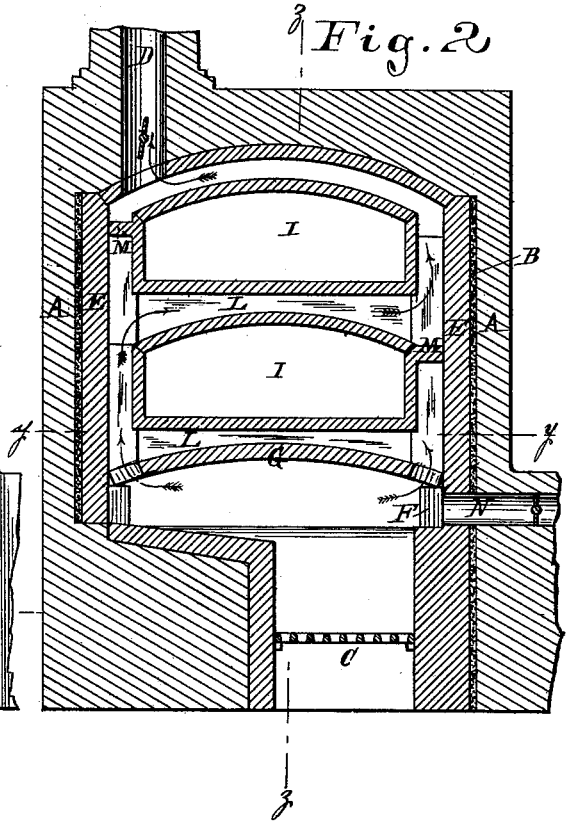

Fig. 3

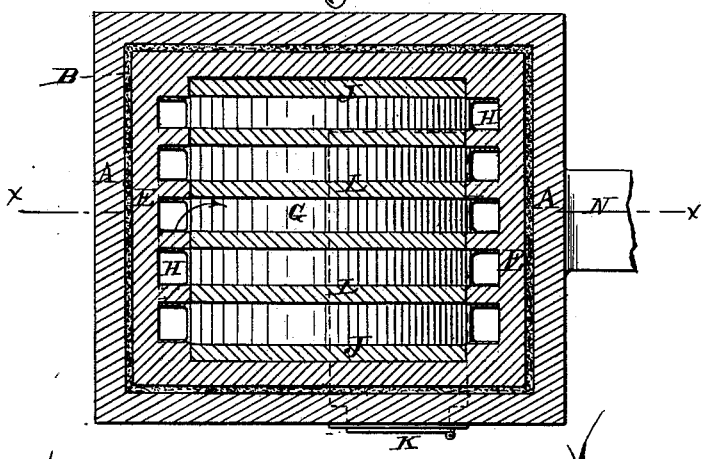

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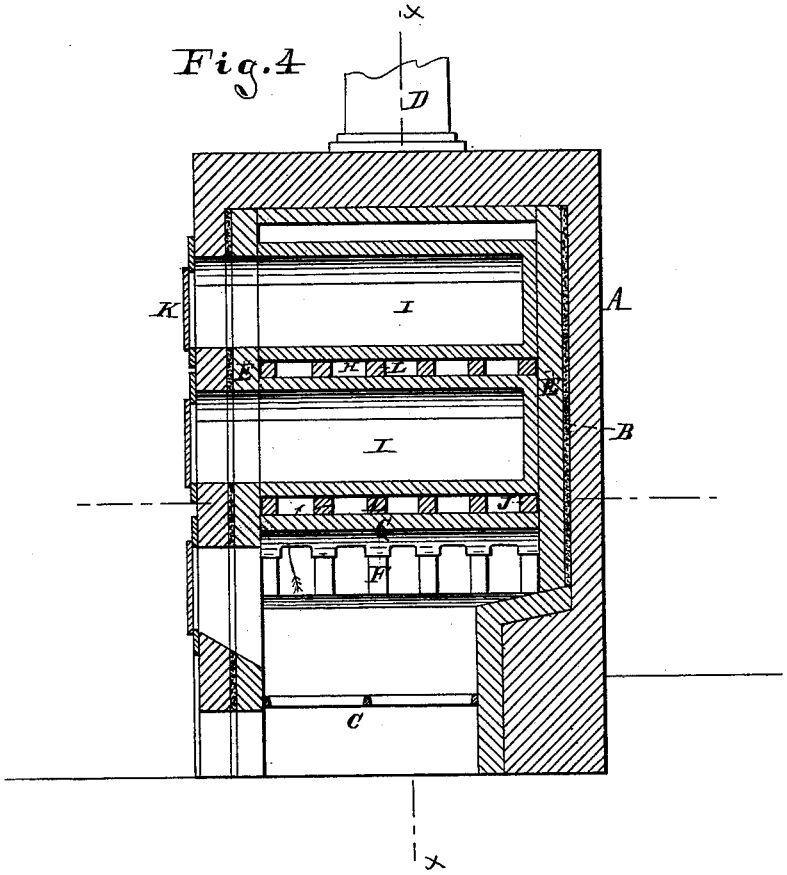
Fig. 4



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UNITED STATES PATENT OFFICE.

EDWIN B. CASSIDY, OF CINCINNATI, OHIO.

IMPROVEMENT IN BAKERS' OVENS.

Specification forming part of Letters Patent No. **220,898**, dated October 21, 1879; application filed July 22, 1879.

To all whom it may concern:

Be it known that I, EDWIN B. CASSIDY, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Bakers' Ovens; and I do hereby declare the following to be a full, clear, and exact description of the invention, sufficient to enable one skilled in the art to which it belongs to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of the ovens; Fig. 2, a vertical section in the line *x x*, Fig. 3; Fig. 3, a transverse section taken in the line *y y*, Fig. 2; and Fig. 4 is a vertical section in the line *z z*, Fig. 2.

Similar letters of reference in the several figures of the drawings denote the same parts.

My invention has for its object to improve the operation of bakers' ovens, whereby the heat from a single furnace is utilized for heating a series of ovens arranged to occupy but small space within the brick-work containing them; and to this end it consists in a series of ovens arranged one over another within the furnace, between the chimney and an arch placed in the furnace between the grate and lower oven, and a system of flues arranged so that the vertical flues shall be at the walls of the furnace, the cross-flues between the ovens and over the arch, and with flues at the edges of the arch, whereby the products of combustion enter the furnace at the edges of the arch next the wall, and thence pass upward and across the furnace through the separate but continuous flues, as I will now proceed to describe.

In the accompanying drawings, A A represent the brick-work of the furnace, made with double walls of brick, with a filling of cement, B, between them, the structure being of sufficient height to receive a number of ovens, and provided with a fire-box and grate, C, at the base, and a chimney, D, at the top.

The inner walls of the furnace are lined with fire-tiles or fire-bricks E E, and the opposite side walls, just above the fire-box, are made with ledges F F, of fire-brick, placed "on edge," to support an arch, G, of like material between the fire-box and lower oven. The inner side walls of the furnace are further provided with vertical flue-walls H H, placed a short distance apart, extending to the top of the upper oven, and supported upon the edges or ledges of the arch. The ledges are also formed with short vertical flues, and the edges of the arch are recessed to correspond therewith, and both register with the flues formed by the walls H H.

I I are the ovens, made of fire tile or brick, and placed a short distance apart, one above the other, within the furnace. They are made, preferably, with a flat bottom and arched top, and supported on each side from the flue-walls H H, their ends being sustained by walls J J on the interior walls of the furnace. Access is had to them through the doors K K in the front wall of the furnace, as shown in the drawings. The lower oven is supported upon the arch G by transverse walls L, placed the requisite distance apart to form cross-flues registering with the vertical side flues, and the oven next above is similarly supported from the oven next below, and so on, according to the number of ovens employed. Each oven, upon one side the furnace, is cut off from the side flues by a partition, M, and the partitions are arranged upon opposite sides alternately, for the purpose of directing the course of the products of combustion back and forth across the furnace.

The space between the fire-box and arch G forms a large combustion-chamber, from which the products of combustion escape at the side edges into the flues. The arch, therefore, deflects the fire from the fire-box away from the bottom of the lower oven, and thus prevents it from warping and cracking by becoming overheated. After leaving the arch-flues the products of combustion pass, some up one set of side flues, until they encounter the partition M, and are thereby deflected across the furnace, between the ovens, or the lower oven and the arch, passing through the cross-flues, where they are joined by those passing upward from the opposite edge flues of the arch, and both together then ascend and pass between two ovens, heating the bottom of one and the top of the other, after which they pass over the upper oven to the chimney, their course being shown by the arrows in Fig. 2. The partitions M are at the tops of the ovens, so that the heat

can extend up the side thereof before being deflected across the furnace.

By this means the ovens are uniformly heated, being surrounded by the products of combustion in their course to the chimney, while the bottom of the lower one is prevented by the arch G from being overheated.

If desired, a second bench of ovens may be heated from the fire-box through the passage N, (shown in Fig. 2,) a damper being provided to open and close the passage when necessary.

By arranging the ovens one above another, as described, with the vertical and cross flues and the partitions M, the heat is more completely utilized than in the ordinary bakers' ovens, and as they occupy far less space, the cost of construction of the furnace is very materially reduced.

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

The baker's oven consisting of a series of ovens, I, arranged one over another within a brick-furnace, A, between the fire-box and top chimney, the arch G between the furnace-grate and lower oven, and the system of flues arranged with the vertical flues at the walls, the cross-flues between the ovens and over the arch G, and the flues at the edges of the arch, whereby the products of combustion enter the furnace at the edges of the arch next the wall, and thence pass upward and across the furnace through the separate but continuous flues, substantially as described, for the purpose specified.

In testimony of which invention I have hereunto set my hand this 7th day of July, A. D. 1879.

EDWIN B. CASSIDY.

Witnesses:

GEORGE H. KOLKER,

NATHAN K. ELLSWORTH.