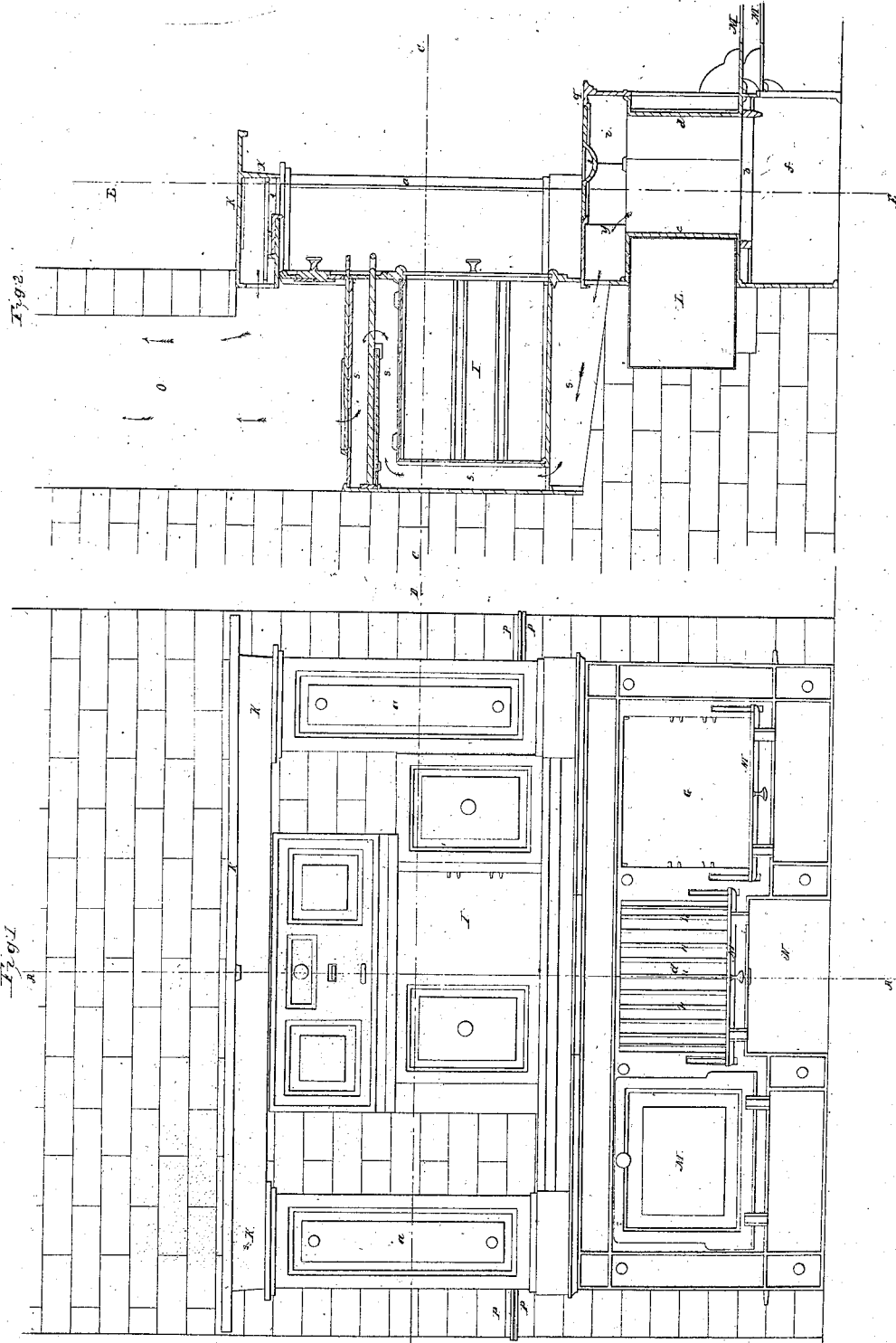


No. 1,456.

PATENTED DEC. 31, 1839.

E. BARROWS.
COOKING RANGE.

3 SHEETS—SHEET 1.

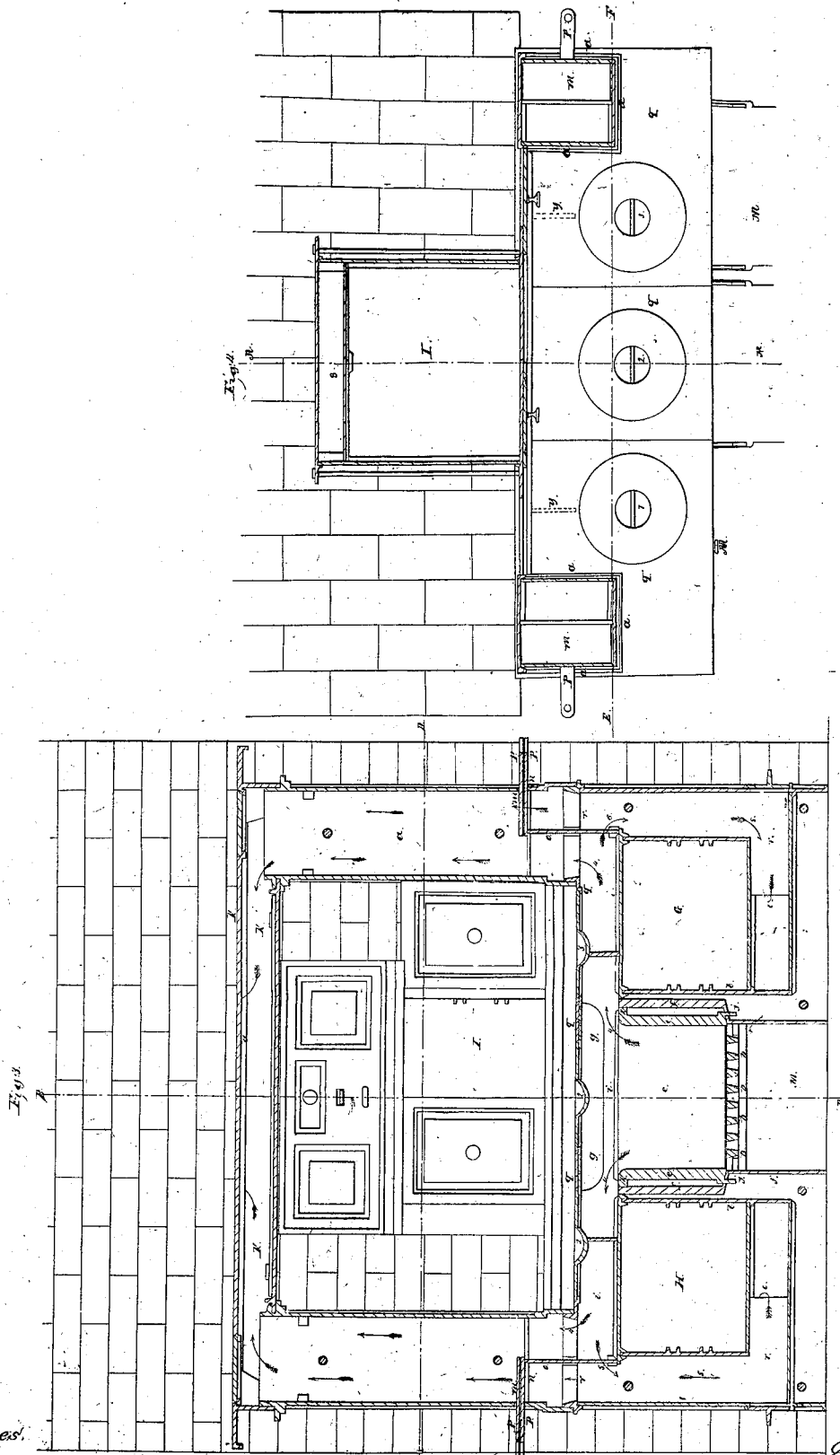


Witnesses:
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E. BARROWS.
COOKING RANGE.

3 SHEETS—SHEET 2.



Witnesses:
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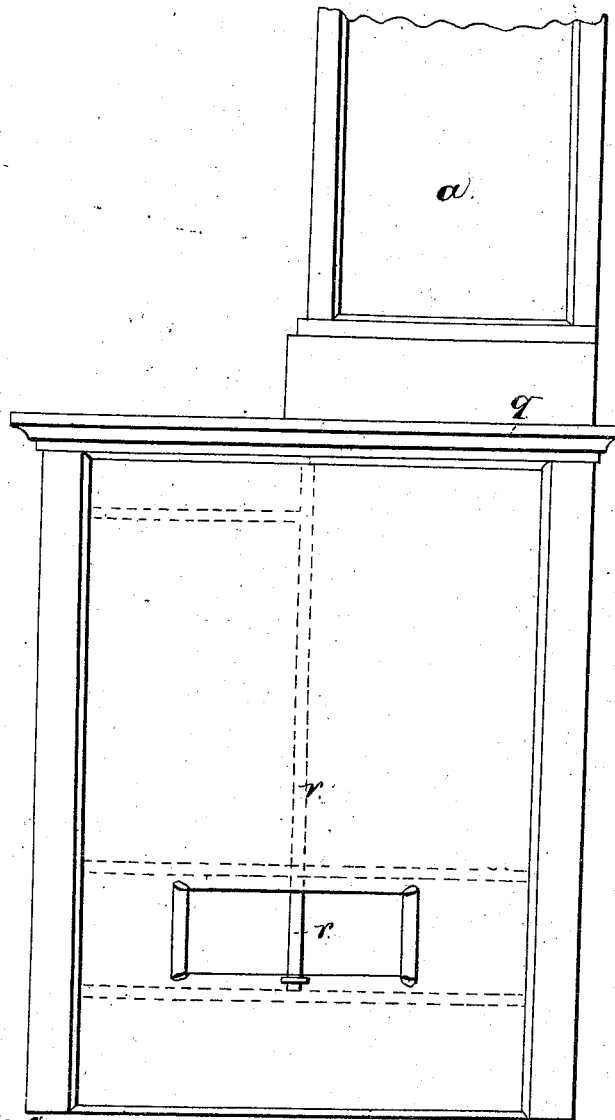
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3 SHEETS—SHEET 3.

Fig. 5.



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UNITED STATES PATENT OFFICE.

EBENEZER BARROWS, OF MATTAPOISETT, MASSACHUSETTS.

MODE OF CONSTRUCTING AND ARRANGING THE FLUES OF COOKING-RANGES.

Specification of Letters Patent No. 1,456, dated December 31, 1839.

To all whom it may concern:

Be it known that I, EBENEZER BARROWS, of Mattapoisett, in the county of Plymouth and State of Massachusetts, have invented certain Improvements in the Manner of Constructing Kitchen-Ranges for the Purpose of Cooking; and I do hereby declare that the following is a full and exact description thereof.

Figure 1, in the accompanying drawing is a front elevation of my range, as set in a fire place. Fig. 2, is a transverse section from front to back, on the line A, B, Figs. 1, and 3, which is the line of the center of the range. Fig. 3, is a longitudinal section through the line E, F, of Fig. 4. Fig. 4, is a horizontal section on the line C, D, Figs. 1, and 3; and Fig. 5, a view of a part of one end of it.

In this range, the furnace, or fire-chamber, occupies the center thereof, the front plate, or portion, of it being seen at *d*, in Fig. 1. The lines *h, h*, on said plate represent projections between flutes, which I sometimes form on it for the purpose of increasing its radiating surface, as it is to be employed in the roasting of meat in a tin kitchen placed before it; this front plate is also shown at *d*, in Fig. 2, *e*, being the back plate, and *b, b*, one of the grate bars. In the sectional view, Fig. 3, where the front plate is removed, the back plate *e*, is, of course, seen, and *e, e*, are sectional representations of the side plates, *b, b, b*, being also sections of the grate bars. No. 2, in Fig. 4, is a cover, standing immediately over the fire chamber, and closing a boiler hole. The four cast-iron plates which compose the four sides of the furnace, drop into suitable grooves, or are furnished with tenons, or dovetails, or are held together in any other convenient way, there not being anything new in this part of the apparatus.

On each side of the fire-chamber I construct an oven, as shown at G, H, Fig. 3, and at G, M, Fig. 2; that at M, being represented as closed by a door of the kind denominated the quadrant hinge door for ovens, for which I obtained Letters Patent, dated the 31st of Aug. 1837. Each of the ovens, and likewise the front of the fire-chamber, are furnished with such doors, which are marked M, in the respective figures, in some of which they are represented as open, and in others as closed.

In Fig. 3, *f, f*, are cast-iron plates, inter-

mediate between the side plates *e, e*, of the fire-chamber, and the inner side plates *l, l*, of the ovens; and between these plates, an air space of half an inch, more or less, is left to regulate the heat; *k, k*, is a projecting rim on the end furnace plates, *e, e*, serving to close the space between these plates and *f, f*; *j, j*, are tenons on *e, e*, which may fall into suitable mortises in *f, f*. N, is the ash pit. There is an oven, marked I, in the respective figures, which is furnished with shelves, doors, and the ordinary appendages of such ovens; and under and around the back and top of this oven the draught from the fire may be directed; its flues are marked S, S; but as neither they, nor the oven which they are to heat, differ in any material particular from such as are already in use, and are well known, a particular description of them would be superfluous; they are shown merely for the purpose of exhibiting them in conjunction with my improvements. The draft around said oven may be arrested by a suitable damper, in the ordinary way, when its use is not required; *g, g*, represents an opening in the back plate of the boiler flue, or space, *i, i*, leading into the flues of the oven I. The top plate of this flue, or boiler space, is marked *q, q*. Short partitions *y, y*, extend from the back plate of the boiler flue in the space *i, i*, toward the boiler openings 1, 3, to force the draft through said space, into contact with the boilers; their place is shown by the dotted lines *y, y*, Fig. 4.

My principal improvement consists in the manner in which I carry the draft from the fire-chamber through flues around a part of the ovens G, and H. From the top of the boiler plate *q, q*, rise two columns *a, a*, which columns constitute flues, up which the draft may be made to pass directly from the fire, as indicated by the arrows 4, 4, Fig. 3; or down, and partially around, the under part of the ovens G, and H, as indicated by the arrows 5, 5, 6. The places of the bases of these columns are shown at *a, a*, Fig. 4. Near their lower ends, there are two shutters, or dampers, *m*, and *n*, Fig. 3, the handles of which are shown at *p, p*; these valves lie upon each other, each of them filling, or being equal to, one half the section of the column; they may be made to close it entirely, or partially, at pleasure. Partitions, *o, o*, extend from the top plates of the ovens, to the lower sides of the dampers, and when

the latter are in the position shown in Fig. 3, the flue, leading from the lower part of the ovens into the columns, will be closed, and the direct draft up the columns will then
 5 take place; but if the dampers *m*, and *n*, are both made to cover the opposite side of the partition *o*, the direct draft will be prevented, and the heated air will be forced around the oven in the following manner.

10 A partition *r, r*, divides the end flues of the ovens *G, H*, into two, and extends, also, under the ovens to about the middle of the lower flue, as indicated by the crooked arrows, *6, 6*, Fig. 3.

15 In Fig. 5, which is an end view of the range, the edge of this partition is shown by the dotted lines *r, r*, and by the lines *r*, where its edge is seen through an opening made for clearing out ashes from the flue, the stopper of which is removed. The draft,
 20 under this arrangement, will pass down the flues in front of the partitions *r, r*, under the ovens, and around said partitions at their termination at *6, 6*; thence on the opposite side of *r, r*, and up through the columns *a, a*, thereby heating the outer ends,
 25 and lower part, or bottom, of the ovens.

The columns *a, a*, open into a hollow, cast-iron mantle *K, K*, which forms their entablature, and the back side of which mantle opens into the ordinary chimney flue *O, O*, Fig. 2. To allow of the escape of steam from the boilers, into the chimney, I make an opening along the whole length of
 30 the lower plate of the hollow mantle, to which I adapt a horizontal, sliding shutter, or damper, which when pushed back leaves a longitudinal opening, from column to column, and when drawn forward, closes it.
 40 A section of one end of this sliding shutter

is shown at *u*, Fig. 2, it being pushed back, so as to leave the opening, as shown at *t*.

When the oven *I*, is omitted, which may be done without interfering with the arrangement of the other parts, the chimney
 45 is to be closed by carrying the brick-work up from the boiler plate to the mantle.

I sometimes connect the two ovens *G*, and *H*, by forming a tunnel, or opening, in the brick-work, passing back of the furnace, so
 50 that the heated air in one oven will freely communicate with the other; by this device, I give greater depth to these ovens, and may, if desired, double their capacity.

In Fig. 2, the space marked *L*, may represent such a cavity, or tunnel, passing along
 55 from one oven to the other, at the back of the furnace. When such a communication is made, the ordinary, back, cast-iron plates of the ovens are omitted, the ovens being
 60 continued back in the brick-work, which, if preferred, may be lined with iron plates.

Having thus, fully described the manner in which I construct my kitchen range, and made known the use of the respective parts
 65 thereof, what I claim as my invention, and desire to secure by Letters Patent, is—

The special arrangement of the flues, by which the ovens at the ends of said range are heated. That is to say, I claim, in combination, the arrangement of the valves *m*,
 70 and *n*, the partitions *o*, and *r*, and the columns *a, a*, so as to constitute flues, and their appurtenances, which are constructed, and operate, substantially in the manner set
 75 forth.

EBENEZER BARROWS.

Witnesses:

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 GEORGE WEST.