J. CHILCOTT.

Bake Oven.

No. 49,503. Patented Aug. 22, 1865.

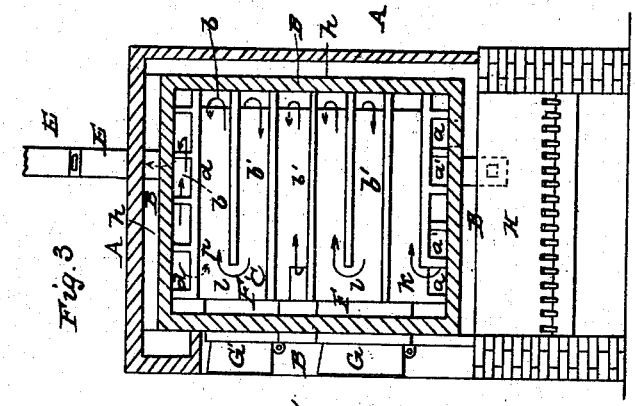

Fig. 3

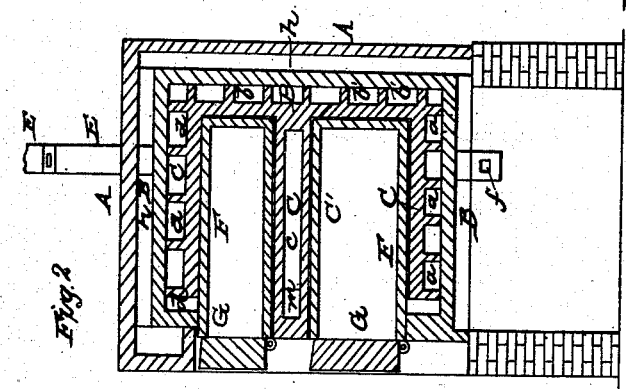

Fig. 2

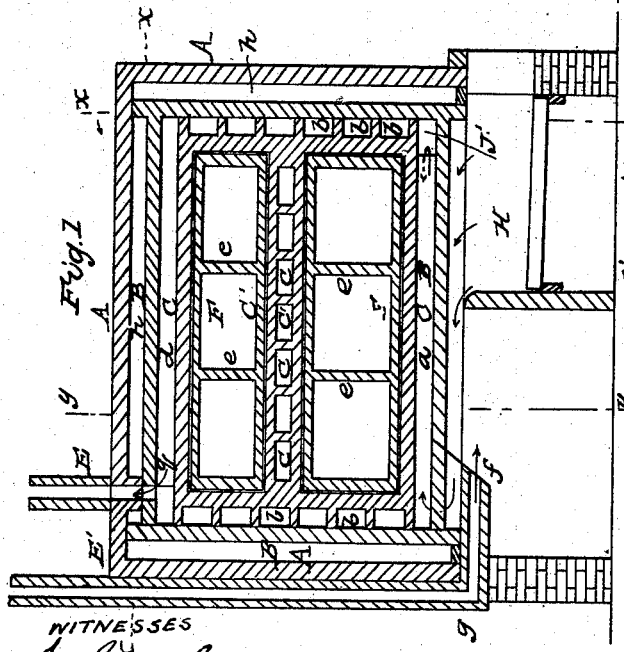

Fig. 1

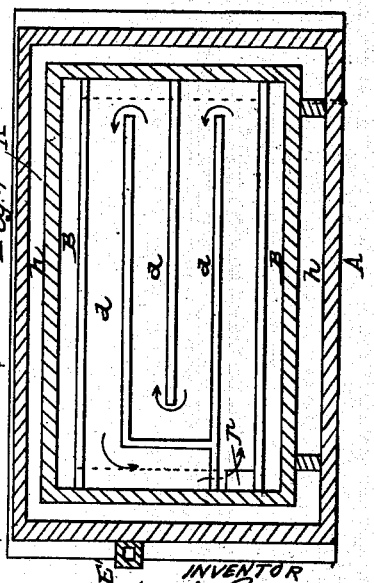

Fig. 4

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN CHILCOTT, OF BROOKLYN, NEW YORK.

IMPROVED OVEN FOR COOKING.

Specification forming part of Letters Patent No. **49,503**, dated August 22, 1865; antedated August 11, 1865.

To all whom it may concern.

Be it known that I, JOHN CHILCOTT, of No. 70 Fulton street, in the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Ovens for Baking and other Cooking Purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of an oven constructed according to my invention, taken directly through the smoke-stacks. Fig. 2 is a transverse vertical section of the same in the plane indicated by the line *y y* in Fig. 1. Fig. 3 is a transverse vertical section of the same in the plane indicated by the line *z z* in Fig. 1. Fig. 4 is a horizontal section of the same in the plane indicated by the line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to economize fuel in the heating of ovens for baking and other cooking purposes; and to this end it consists in the employment on all or several sides of and at the top and bottom of an oven, and in a partition or partitions running through it, of a continuous system of flues, through which the gaseous products of combustion from the fire pass back and forth several times.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A B is the outer setting or casing of the oven, three sides and the top of which are composed of an outer sheel, A, and an inner shell, B, of brick-work or cast-iron, with an air-space, *h*, between them to act as a non-conductor and prevent loss of heat by radiation from the exterior.

C is the oven proper, having interposed between it and the shell B flues *a*, *b*, and *d*, which, with the flues *c* in a horizontal partition, C′, running through the oven, form a continuous system through which the gases of combustion circulate from the fire to the uptake E. The oven is represented with two movable drawers or sections, F F′, one above the partition C′ and the other below it, and these drawers are divided into compartments by vertical partitions *e e*. The oven may be of iron and the drawers of clay ware or porcelain, or the whole may be of iron or of clayware.

The oven-doors G G′ are represented as attached to the drawers F F′, but might be attached to the shell or partition C′, the said doors being on that side of the oven which is not covered by the casing A B, and on which side the flues are omitted.

The fire-place H is under the casing A B, and in connection with it there is a flue, *f*, communicating directly with the chimney E′, to be opened for lighting or drawing up the fire, but closed by a damper, *g*, when the fire has been started, to compel the gaseous products of combustion to pass through the system of flues *a b c d*. The series of flues *a a* under the oven run from end to end thereof, and the partitions *a′* between them have openings *j*, as shown in Fig. 1, at opposite ends alternately, so that the gases from the fire, entering the first one by an opening, *i*, (see Figs. 1 and 2,) in the shell B, may cirulate from one to another through the whole series, and so pass several times back and forth the whole length of the oven and under the entire surface of the bottom thereof. From the last flue *a* the gases pass upward through an opening, *k*, Fig. 3, into the lowest of the side flues, *b*. Each of these flues passes horizontally along three sides of the oven, and by openings *l*, provided in the horizontal partitions *b′* at opposite ends alternately, the gases are caused to circulate back and forth through one after another of the said flues until they arrive at an opening, *m*, Fig. 2, in one end of the horizontal partition C′, which is hollow and so divided into flues *c c* that the gases will have to pass back and forth several times from one side to the other before arriving at the other end of the said partition, whence they escape by the opening *n*, Fig. 3, into one of the flues to continue their circulation backward and forward and upward around the three sides of the oven before escaping from the uppermost of the said flues by an opening, *p*, Figs. 3 and 4, which leads into one of the top flues, *d*. These top flues are so arranged, as shown in Fig. 4, that they form a continuous series through which the gases circulate back and forth all over the top of the oven before escaping by the opening *q*, Fig. 1, to the uptake E. By this continuous system of flues, which causes the heated gaseous pro-

ducts of combustion to circulate repeatedly back and forth under the bottom, around three sides of, and over the top of the oven, every part of the oven is heated and all the available heat from the said gases is utilized, instead of much of it escaping to the chimney, as is common in other ovens.

If desirable, the inside of the drawers or baking compartments F F′ may be provided with tubes to carry off the effluvia and regulate the heat.

What I claim as new, and desire to secure by Letters Patent, is—

1. The employment on all or several sides, under the bottom, and over the top of an oven of a continuous system of flues, substantially as herein described, through which the gaseous products of combustion from the fire pass back and forth several times in contact with the exterior of the oven before escaping to the chimney or uptake.

2. The hollow partition C′, containing a series of flues, *c c*, forming part of the same continuous system with the flues at the top, bottom, and sides of the oven, substantially as herein described.

JOHN CHILCOTT.

Witnesses:
HIPPOLYTE MALI,
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