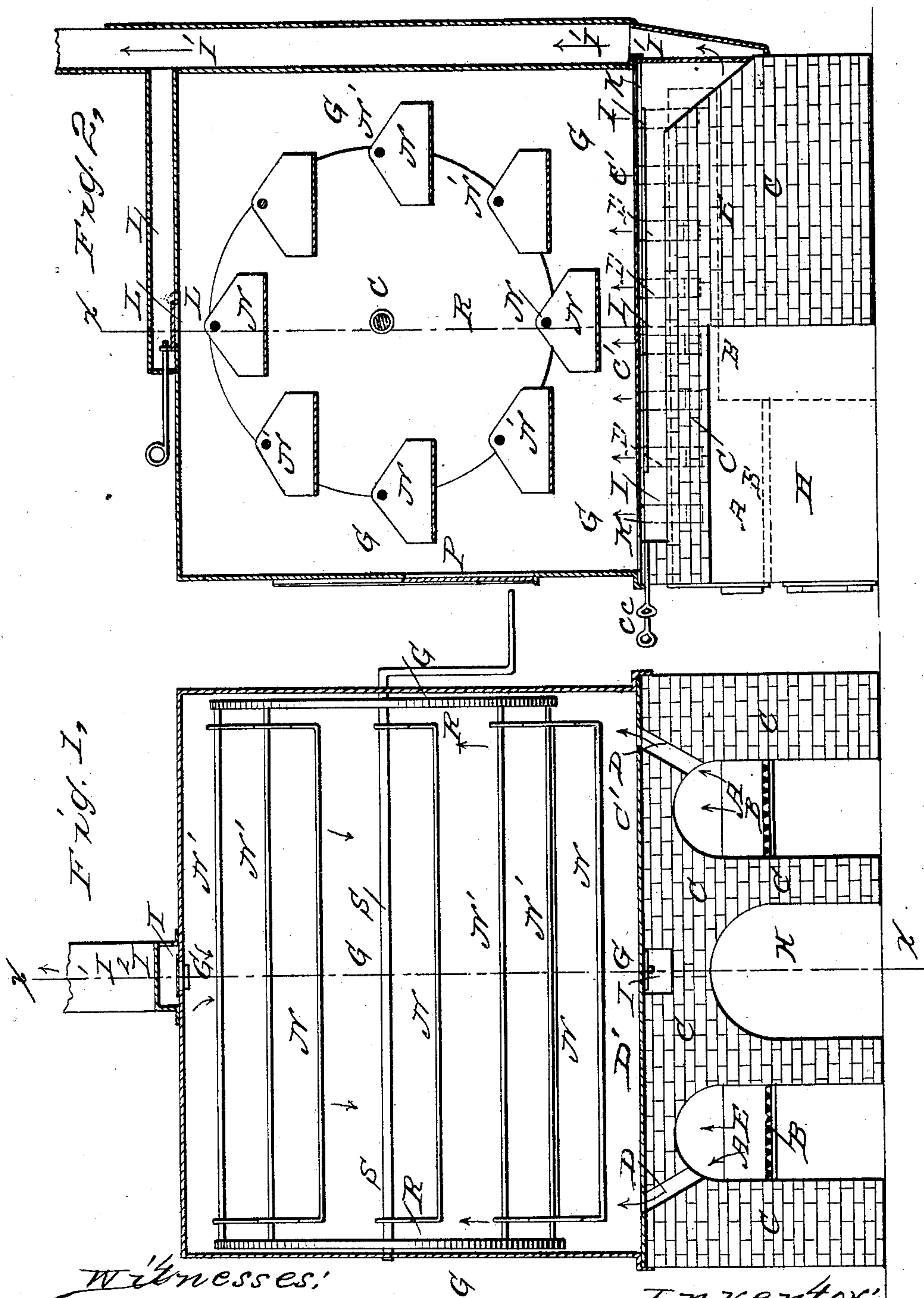


D. McKENZIE.

Baker's Oven.

No. 28,130.

Patented May 1, 1860.



Witnesses:
C. W. Thompson
J. W. Thompson

Inventor:
Duncan McKenzie

UNITED STATES PATENT OFFICE.

DUNCAN MACKENZIE, OF BROOKLYN, NEW YORK, ASSIGNOR TO MARY ANN ELIZABETH MACKENZIE, OF SAME PLACE.

OVEN.

Specification forming part of Letters Patent No. 28,130, dated May 1, 1860; Reissued April 19, 1870, No. 3,929.

To all whom it may concern:

Be it known that I, DUNCAN MACKENZIE, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in the Construction of Baking-Ovens; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a transverse vertical section, taken through the fire-places, ash-box, and flues of my improved oven, showing the direction the heated currents take in leaving the fire-places. Fig. 2 is a vertical longitudinal middle section, taken through the oven and brickwork as indicated by the red line *x, x*, of Fig. 1, in which the central hot air flue is shown communicating with the main escape pipe with the valves or dampers in the front and rear part of the flue passage. This figure further shows in dotted lines the outline of the grate and fire-bridge with the escape passages for hot air.

Similar letters of reference indicate corresponding parts in both figures.

To enable those skilled in the art to fully understand my invention I will proceed to describe its construction and operation.

This invention belongs to that class of baker's ovens in which anthracite coal is used as fuel, where very little if any smoke is the result.

In the drawings, A represents the fire-place with grate bars, B, built up in the brickwork C. This fire-place with its grate bars and ash-pit extends back a suitable distance, represented by the dotted lines, Fig. 2, where there is a bed E, of brickwork built up, forming, with the arch, a passage leading back to the rear of the oven, through which the fire from the furnace A, plays freely.

D, D are a series of flues which lead off from the furnace and the space over fire-bed E, and communicate with the oven G, which is arranged above the masonry; these short flues are the only means of escape for the heat from the furnace, except what little will be absorbed and given out by radiation from the brickwork above the arch into the oven, and they (the flues) are sufficiently numerous

to conduct off the heat very rapidly from the furnace, and diffuse it through the oven. 55

I have referred to only one fire-place or furnace with side flues, but by referring to the drawings it will be seen that two are used both communicating with the oven above by flues which are directed toward the sides of the oven, as indicated by red arrows, Fig. 1. Between the two furnaces is a coal receptacle, H, and above this receptacle, and extending from the front to the rear of the oven is a horizontal flue, I, which communicates with a vertical flue, I', extending up in rear of the oven, as shown by Fig. 2. This lower and horizontal flue, I, communicates with the oven through holes in the front, and in the rear of this flue, which are closed by valves, K, K, Fig. 2, which can be operated from the front of the oven by means of damper-rods, *c, c*.

It will be observed that the end of the flue I, where the products of combustion escape into flue I', is enlarged into a chamber and bent downward, somewhat in the form of an inverted cone. The point of communication with flue I', is at the lower part of this chamber. By this enlargement and downward projection of flue I, the draft of flue I', acts equally upon the contents of flue I, drawing off the same more evenly and freely than if the flue I, were continued horizontally out and opened directly into flue I'. If the flue I, were extended horizontally as stated the draft through the damper opening at the back end of flue I, would be greater than the corresponding opening at the opposite end. But by the enlargement and downward extension of the rear end of flue I, the draft through both damper openings K, are rendered uniform, and the baking operation thus improved and the fuel saved. 95

In the center of the top of the oven is a valvular opening L, which communicates with the main flue I, by a flue I², as clearly represented by the drawings.

In the oven G, are arranged a suitable number of gravitating pans N, which are hung from rods N, which extend across from two circular revolving plates R, R, which are turned by a shaft S, having its bearings in each side of the oven. The bread pans are placed on these pans or swinging shelves 105

N, and the whole number are rotated at one time by turning the shaft S, the bread is thus made to receive a uniform heat. The bread pans are placed in and removed from the oven through door P, Fig. 2.

The masonry C, may be covered with a suitable thickness of metal C', as represented in the drawings.

It will now be readily understood from the above description that when the fires are built up in the furnaces and the damper in the top of the oven opened, a direct ascending draft will take place, and the smoke and gas will all escape through the flue, I², but when the fires are well lighted this damper should be closed and the front damper, or the rear one, in the lower central and horizontal flue, I, or both dampers may be opened or partially opened, when a downward draft will take place and the heated air, escaping from the flues D, will rise to the top of the oven on the sides and then descend in the center of the oven to the central flue-space or spaces, and escape up the main flue F. The heated air will thus be made to circulate and to rotate in the oven and diffuse its heat throughout the entire oven apartment, in a uniform and

rapid manner, and, instead of using heat by radiation, as in ovens of the present construction, I obtain a direct heat from the furnace and thus economize time and fuel; besides, with my arrangement of dampers, I am enabled to regulate the draft in firing up, and to control the heat of the oven in a perfect manner.

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

1. The combination of the hot air flues D, escapes K, K, and flue I, with the lower part or floor of the oven C', as and for the purpose herein shown and described.

2. I also claim the enlargement and downward extension of the rear end of flue I, in combination with flue I', as and for the purpose herein shown.

3. I also claim the arrangement in combination with the oven G, of the flues I², I', I, D, and the dampers K, K, and L, as and for the purpose herein shown and described.

DUNCAN MACKENZIE.

Witnesses:

M. M. LIVINGSTON,
WILLIAM THOMPSON.