

WILLIAM P. HALL.

Improvement in Kilns for Burning Brick, Lime, &c.

No. 120,965

Patented Nov. 14, 1871.

Fig. 1.

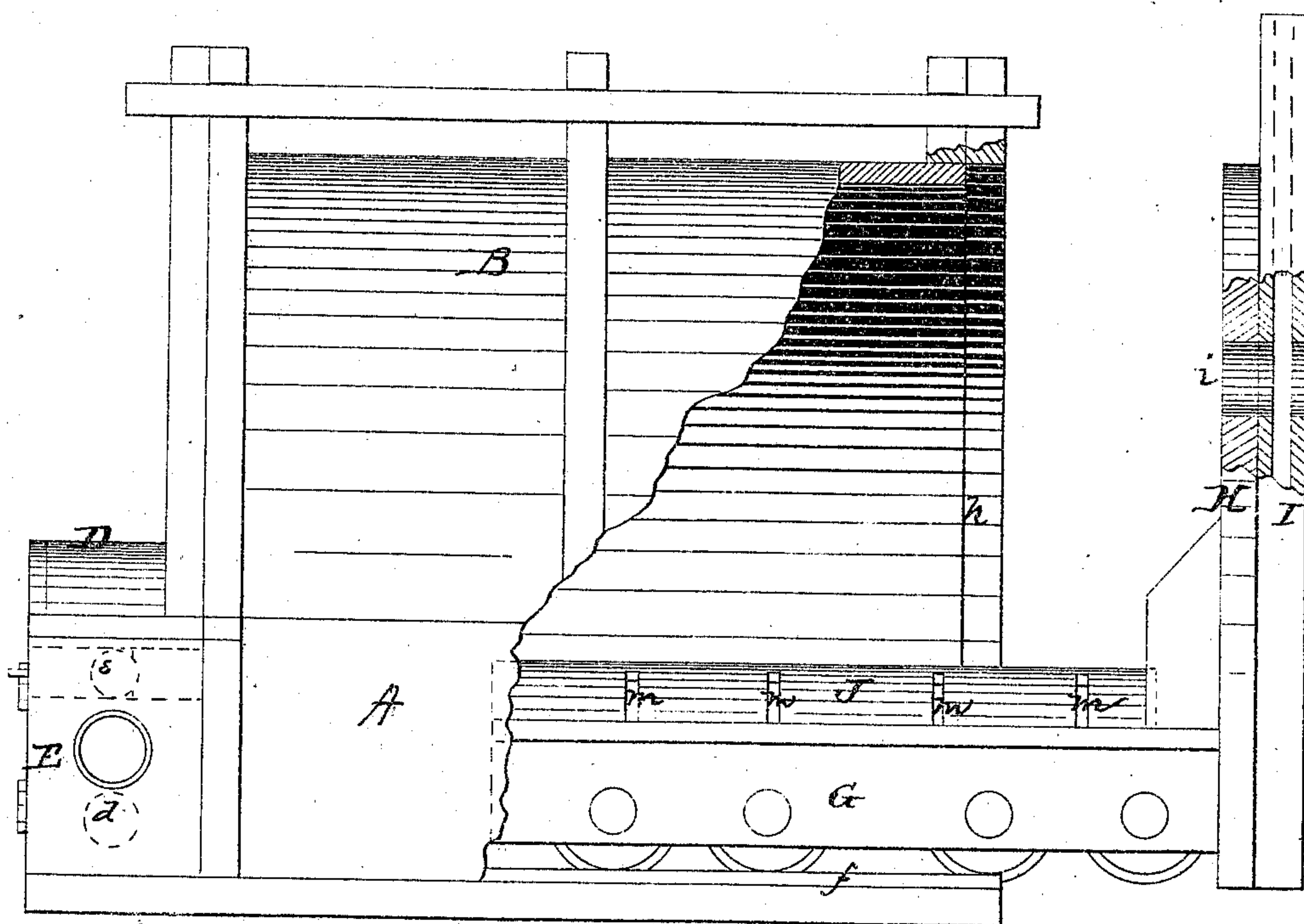
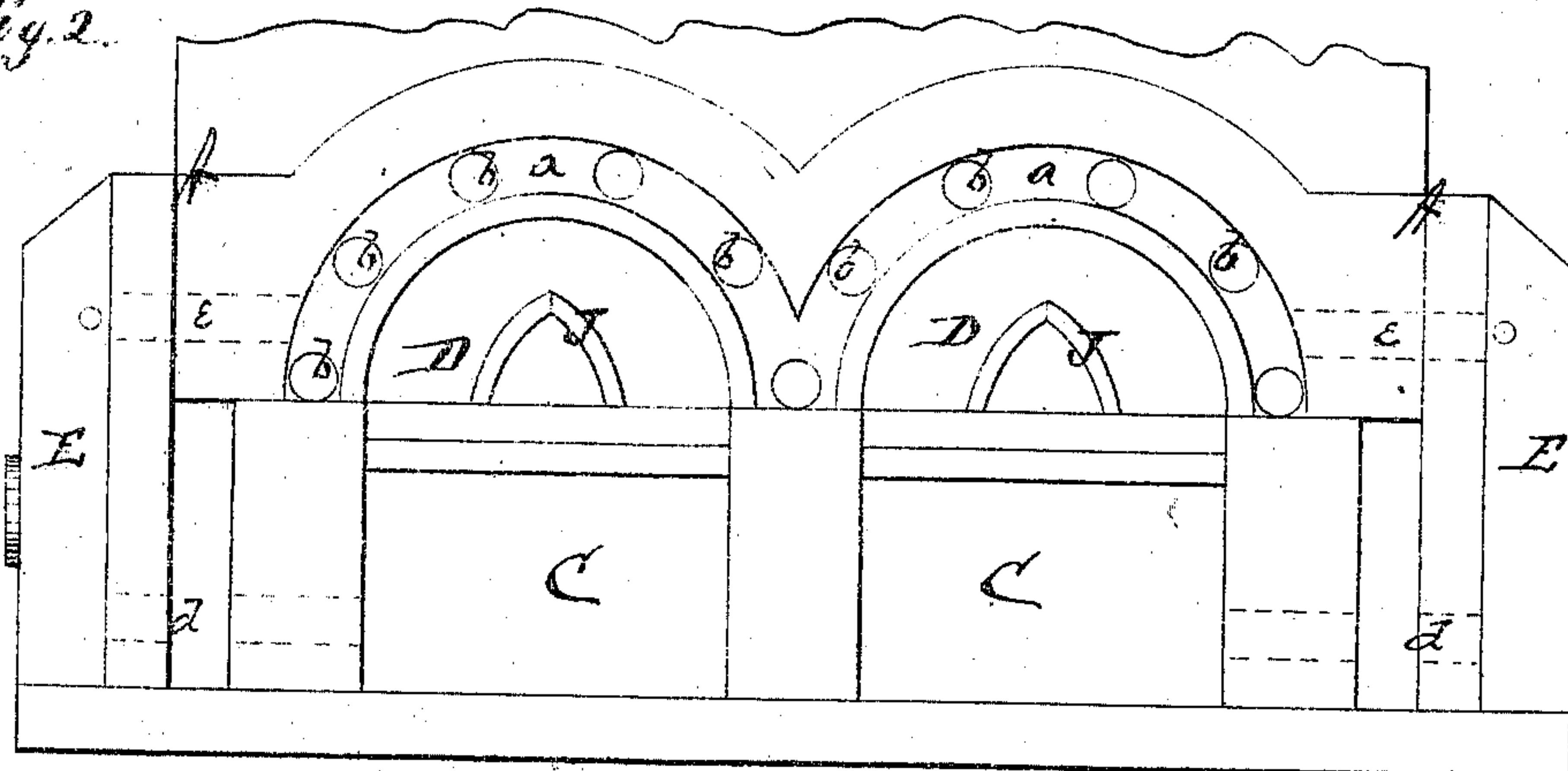


Fig. 2.



Witnesses:

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L. L. Ewert.

Inventor

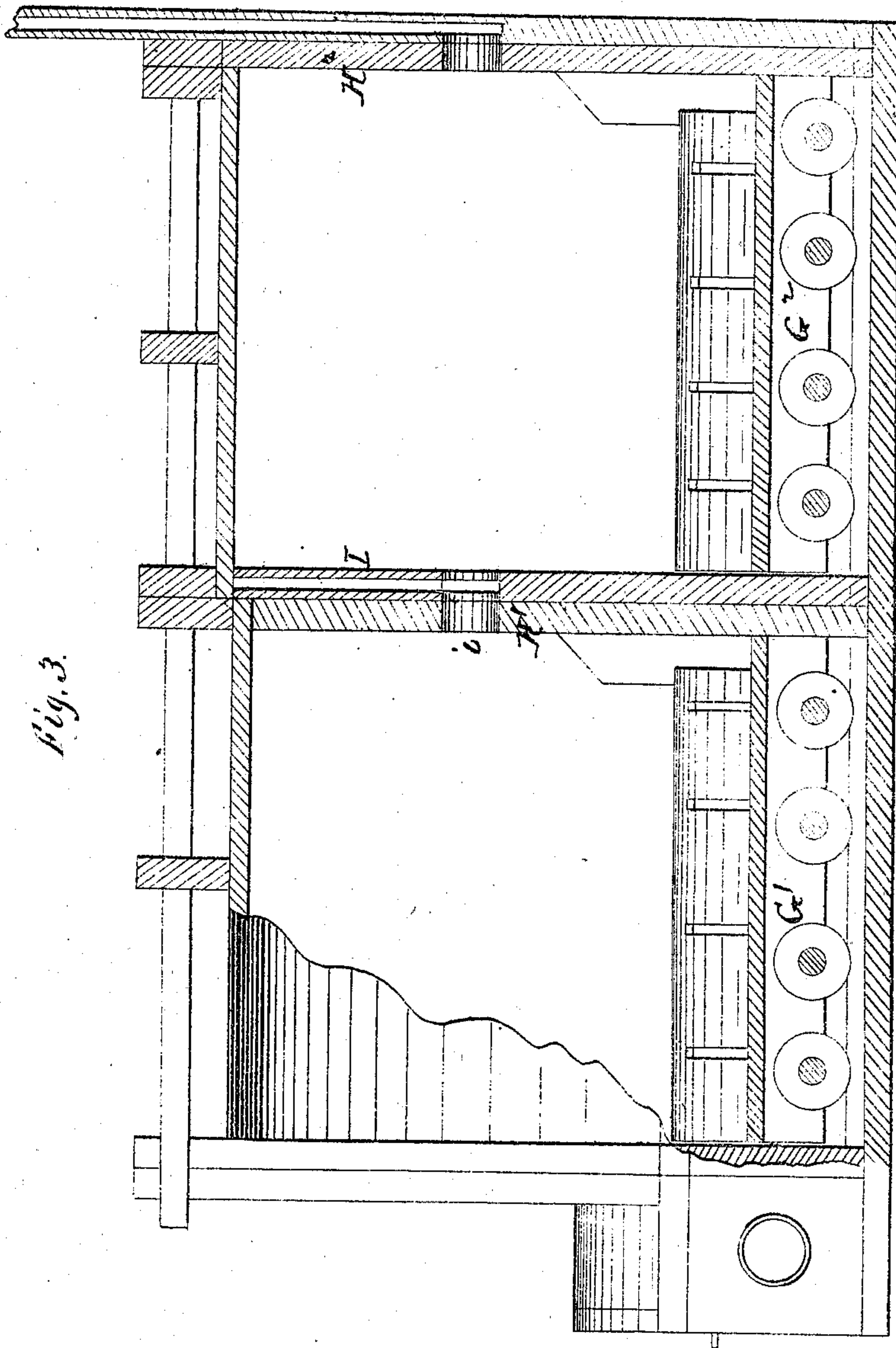
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UNITED STATES PATENT OFFICE.

WILLIAM P. HALL, OF PIQUA, OHIO.

IMPROVEMENT IN KILNS FOR BURNING BRICK, LIME, &c.

Specification forming part of Letters Patent No. 120,965, dated November 14, 1871.

To all whom it may concern:

Be it known that I, WILLIAM P. HALL, of Piqua, in the county of Miami and in the State of Ohio, have invented certain new and useful Improvements in Kilns; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a kiln for burning lime, brick, tile, crockery, or any other article that needs burning, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side view, part in section, and Fig. 2 a front view of my kiln. Fig. 3 is a longitudinal vertical section of a double kiln.

A A represents the sides of the kiln, which are made perpendicular, with an arch, B, on top of the same, the whole made of solid brick-work with suitable braces or other means for strengthening the same. At one end of the kiln A B are located the furnaces D D, having suitable ash-pits C C. Around each furnace D is an air-chamber, *a*, with a series of openings, *b b*, leading into the kiln. Each furnace is, on the outside of the kiln, provided with an air-receiver, E, into which the air is forced by the fan or blower, and from which the air passes through a tube, *d*, into and under the grate of the furnace and through another tube, *e*, in the air-chamber *a*.

For the construction of the furnace and its exterior air-receiver I make no claim in this application, as I have fully described and claimed the same in another application filed with this.

On the bottom of the kiln are laid rails *f f*, which are intended to run out into the yard, and have suitable side tracks and switches, as occasion may require. Upon these rails runs a car, G, of such size as to fit within the kiln, and the outer end of this car is built into and firm with the back wall H of the kiln. This back wall is built of brick, metal, or other suitable material, and, if of brick, with an iron band around it to strengthen it and hold it together, and when

moved into its place fits snugly against a shoulder, *h*, in the rear end of the kiln. In this wall is an aperture, *i*, at or near the center of the circle of which the arch B forms a part. This aperture may be provided with a damper to control the heat. This aperture leads into a flue, I, attached to the outer side of the wall, and made to correspond with the chimney of the kiln when the wall is placed in position. Lengthwise on the car G are built two flues, J J, of fire-tile, with suitable openings, *m m*, on the sides, as shown in Fig. 1. These flues extend clear to the inner end of the car, but leave a few inches space between their outer ends and the inner side of the movable back wall H.

The articles to be burned are placed on the car G and piled over the flues J J as high as may be desired, care being taken, however, to leave a few inches space at the inner end of the car. The car is now moved into the kiln so that the back wall H will fit into and close the rear end of the kiln. The front ends of the flues J J will then be close up to and opposite the center of the furnaces D D. A part of the flames, heat, &c., enters these flues and passes through the apertures *m m* to and through the mass piled on top, while the rest of the flames, heat, &c., pass upward through the space left at the front end of the kiln and then through the entire mass. The heat, smoke, &c., from the bottom of the kiln, after reaching the rear end, pass upward, and that from the top of the kiln pass downward until they reach the aperture *i*, when it all goes out through the flue I. When the articles are sufficiently burned the entire back wall, car, and burned mass are moved on the track out of the kiln, when the mass can be readily removed and the car filled again or another can substituted.

In Fig. 3 I have represented a double kiln, in which two cars are used at one time. In this case the rear half of the kiln is so much larger than the front half that the back wall of the front half can pass entirely through the rear half. G¹ G² are the two cars, and H¹ H² the two back walls in this figure. In the wall H¹ the aperture *i* goes clear through the wall, as shown, and said aperture may be provided with a damper, so as to allow the smoke, heat, &c., either to pass upward through their flue I or horizontally through the wall. The wall H² closes the rear end of the

entire double kiln. The smoke, heat, &c., being allowed to pass through the wall H¹ into the rear compartment of the double kiln the mass in said rear compartment becomes thoroughly dried and heated while the mass in the front compartment is being burned. As soon as this latter mass is finished both cars are drawn out, the car with the burned mass switched off and the car with the heated mass pushed into the front compartment to be burned. Another car with a new mass is then pushed into the rear compartment to be dried and heated in the same manner. This kiln may be used for burning lime, brick, tile, crockery-ware, or, in fact, any and everything that requires burning.

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

1. A kiln having a movable back-wall with car attached upon which to move the mass to be

burned in and out, substantially as herein set forth.

2. The combination of the movable back H with the aperture *i* and flue I, the car G and flues J J with apertures *m m*, all constructed and arranged substantially as and for the purposes herein set forth.

3. The combination of an arched closed-top kiln, A B, with furnaces at the front end, flat bottom with track *f*, and a movable back-wall, H, with car G, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of October, 1871.

WM. P. HALL.

Witnesses:

HARRY C. SCOTT,
C. HADAWAY.

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