

(No Model.)

2 Sheets—Sheet 1.

R. & H. VANDERHOOF.
LIMEKILN.

No. 543,433.

Patented July 23, 1895.

Fig. 1,

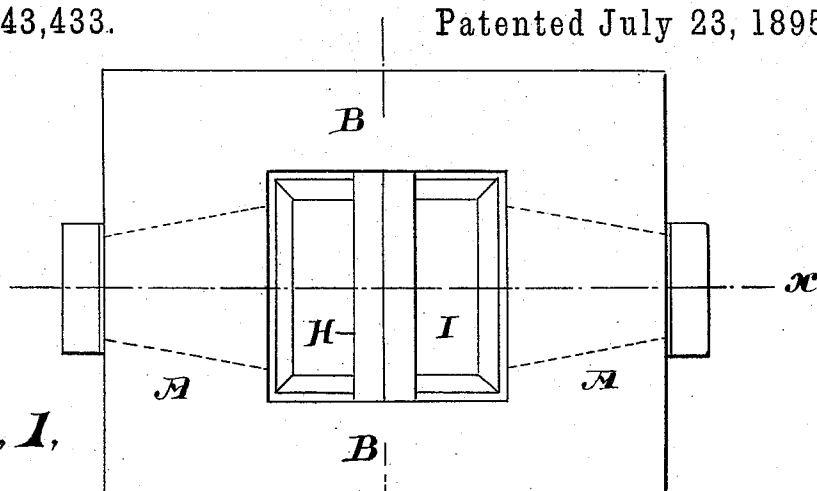
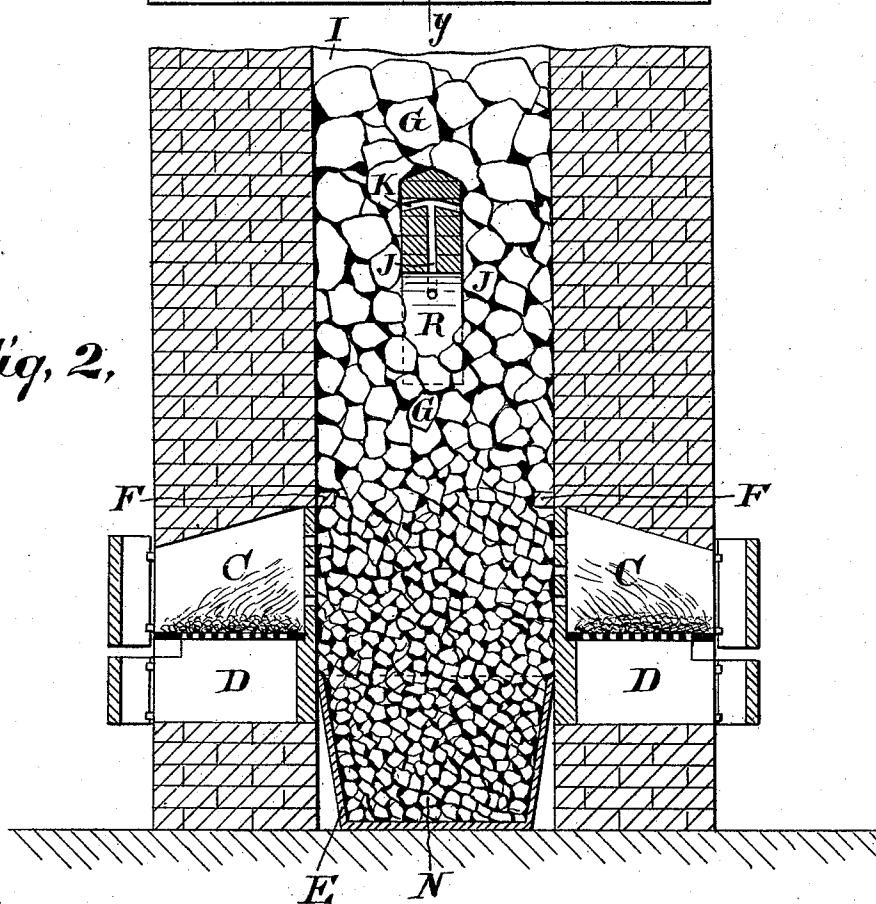


Fig. 2,



Witnesses
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(No Model.)

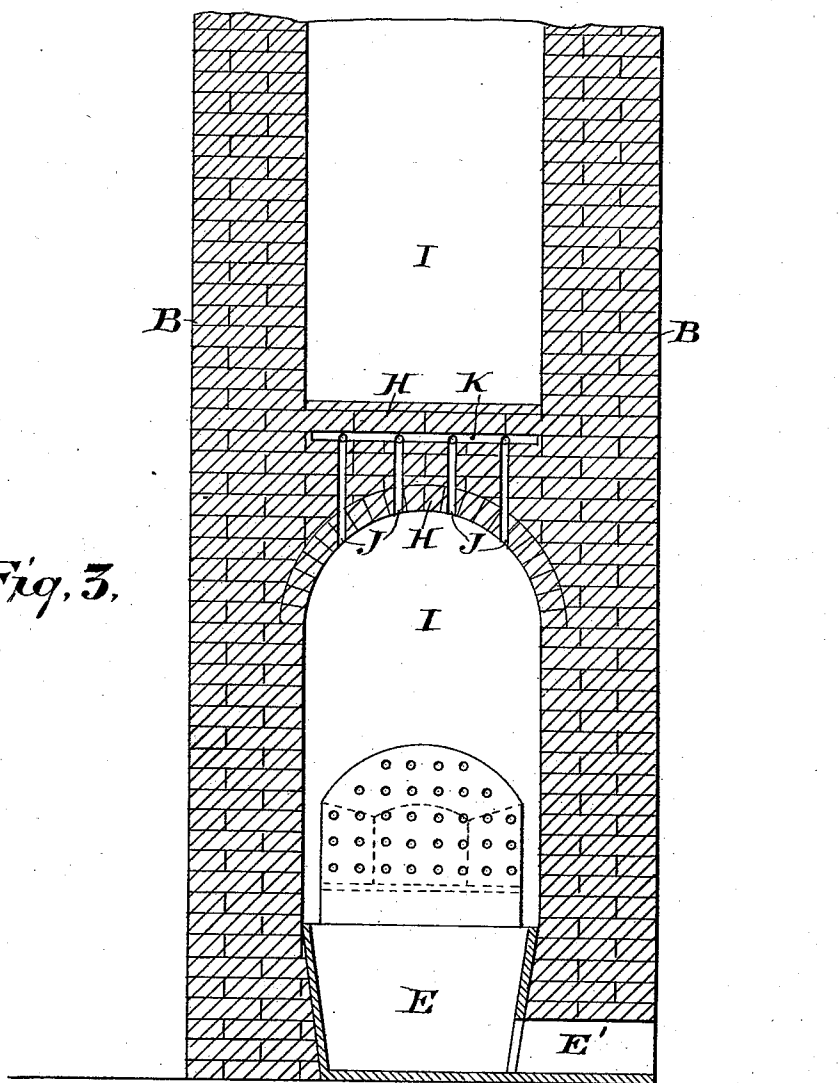
2 Sheets—Sheet 2.

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Fig. 3.



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UNITED STATES PATENT OFFICE.

RICHARD VANDERHOOF AND HARRY VANDERHOOF, OF HAMBURG, ASSIGN-
ORS TO MARCUS SAYRE, OF SOUTH ORANGE, NEW JERSEY.

LIMEKILN.

SPECIFICATION forming part of Letters Patent No. 543,433, dated July 23, 1895.

Application filed February 6, 1895. Serial No. 537,441. (No model.)

To all whom it may concern:

Be it known that we, RICHARD VANDERHOOF and HARRY VANDERHOOF, citizens of the United States, residing at Hamburg, in the county of Sussex and State of New Jersey, have invented certain new and useful Improvements in Limekilns; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to secure increased draft to the fire and a more thorough calcination of the carbonate or limestone in the kilns (process in which the carbonic acid is driven off from the limestone, leaving oxide of calcium or quicklime) and to secure other advantages and results hereinafter referred to.

The invention consists in the improved limekiln and in the combination and arrangement of the parts thereof.

Referring to the accompanying drawings, in which similar letters of reference indicate corresponding parts in each of the figures where they occur, Figure 1 is a plan view of a limekiln embodying our improvements. Fig. 2 is a section through line *x* of Fig. 1, and Fig. 3 is a section through line *y* of Fig. 1.

In said drawings, A designates the side walls, and B the end walls of said kiln. Said side walls are generally greater in length than the end walls, and contain the ovens or fire-chambers C and ash-pits D, and E designates a hopper at the base of the kiln, and E' an opening through which the lime is withdrawn. F designates inward projections at the top of the fire-chambers, which form the ordinary abutments for the limestone G to rest upon. All these features are old.

H designates an arch, which is spanned from the front and rear walls B over the kiln chamber or flue at a suitable distance above the fire-chambers (usually three to four feet) and at right angles to the latter. Said arch is preferably made of fire-brick. Vertical flues J pass through the said arch to within a short distance—say twelve inches—from the top thereof, at which point they intersect with a cross-flue K, passing out at each side of said arch, by which the heat is equally distributed

at the sides thereof and forms with the kiln one solid piece of masonry. The lime N is at intervals withdrawn from the hopper E through the opening E', and fresh charges of limestone are added at the top. This limestone while gradually coming down the chamber I is heated by the incandescent mass of lime below and by the hot air and gases which escape through the lime-chamber. When arriving upon the arch the limestone is separated and falls down on both sides of said arch, automatically forming a free space R under the arch. In said space the hot air is concentrated and assists in heating the limestone. At the same time the tubular apertures or flues J draw the heat from beneath the arch and distribute it equally upon both sides thereof through the limestone, whereby inequality of draft is counteracted as the top of the arch H separates compact masses of limestone.

It has been found in practice heretofore that a considerable amount of limestone did not undergo the desired calcination, caused by inequality of draft. We have found by the application and adoption of our improvement that we obtain a stronger and more even draft and a thorough calcination of the limestone, resulting in a considerable saving of fuel and time, as will be obvious.

Having thus described our invention, what we claim as new, and wish to secure by Letters Patent of the United States, is—

In a lime kiln, the combination, with the walls thereof provided with fire chambers and ash pits, of an arch with the ends formed integrally with the walls above the fire chambers, said arch being of a less width than the space between the walls and provided with transverse perforations or flues, and vertical flues extending from the bottom of the arch to and intersecting the transverse flues, whereby the heat from the space underneath the arch is equally distributed to both sides of the arch, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 21st day of January, 1895.

RICHARD VANDERHOOF.
HARRY VANDERHOOF.

Witnesses:

OLIVER DRAKE,
FRANK KEMBLE.