M. CALLAN.

LIME-KILN.

No. 191,566. Patented June 5, 1877.

Fig. 1.

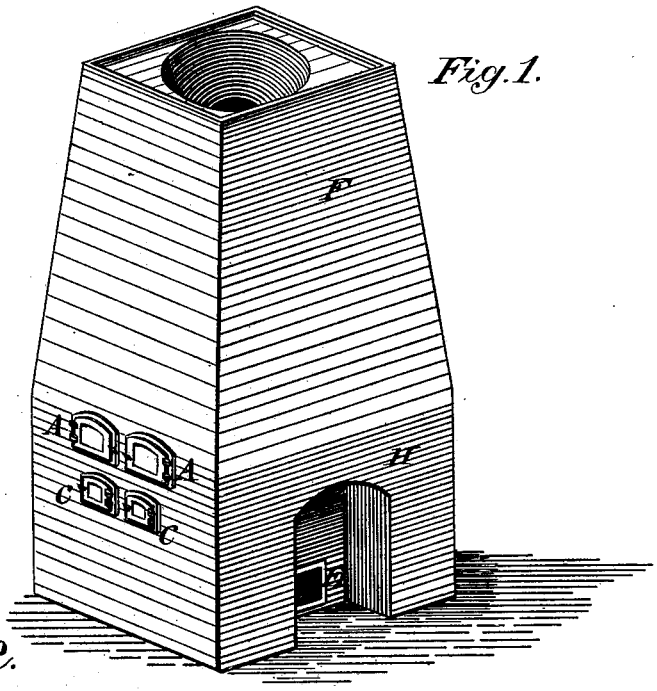


Fig. 2.

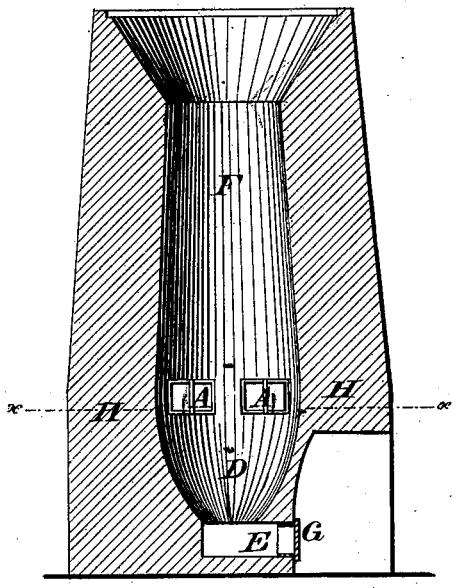
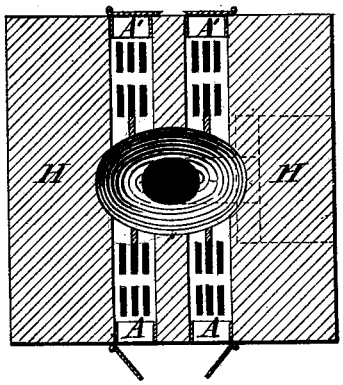


Fig. 3.



Attest:

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UNITED STATES PATENT OFFICE.

MICHAEL CALLAN, OF INNERSKIP, ONTARIO, CANADA.

IMPROVEMENT IN LIMEKILNS.

Specification forming part of Letters Patent No. **191,566**, dated June 5, 1877; application filed September 2, 1876.

To all whom it may concern:

Be it known that I, MICHAEL CALLAN, of Innerskip, in the county of Oxford, Province of Ontario, and Dominion of Canada, have invented certain new and useful Improvements in Limekilns; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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.

Figure 1 is a perspective view. Fig. 2 is a vertical section, and Fig. 3 is a horizontal section through the line indicated by *x x* in Fig. 2.

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

This invention consists in the construction and arrangement of the cupola of a limekiln in such a manner that the stone, during the process of burning, shall be subjected to a regular and even heat, while, at the same time, the burned lime may be readily discharged, substantially in the manner and for the purpose hereinafter more fully described, and pointed out in the claim.

In the drawings, H is the body of the kiln, and F is the cupola. The latter has four fire-places, A, arranged in pairs on opposite sides of the kiln, as shown, each having a separate ash-pit, (denoted by C.) D is the hopper for the accumulation of the burned lime, which is removed through the channel E, having door G.

By reference to Fig. 3, it will be seen that the interior hollow part, or cupola, of the kiln is oval in its horizontal section, where the fire-places open into it, the smaller diameter of the shaft or cupola being in a line with the fire-places, and tapering upward to the mouth or top of the cupola. This is for the purpose of causing the heat from the four fire-places A to penetrate readily through the stone placed in that part of the cupola.

The limestone is fed from the top, which is preferably inclined in shape, as shown in Fig. 2, so as to feed the stone with greater facility.

By this arrangement—*i. e.*, by the combination of the four fire-places A, arranged as described, with the oval shaft or cupola F—the heat may be so regulated as to subject the stone within the cupola to an even amount of heat on all sides.

I am aware that it is not new to construct a limekiln with a cupola having an oval shape at the intersection of the fire-places, and I do not, therefore, claim this construction, broadly; but in this class of kilns, as heretofore constructed, the difficulty has been that the burned lime will choke up the throat of the discharge-hopper quicker than it can be removed, because the intense heat caused by the narrowness of the cupola at the point where the fires act upon the stone has a tendency to reduce the mass or body of stone which occupies that part of the cupola too quickly or suddenly, so that, in expanding, (under the pressure of the superincumbent stone,) the burned lime will become in part disintegrated, and choke up the narrow entrance to the discharge-hopper. This difficulty I obviate by, first, so constructing the two pairs of fire-places that each pair (on one side of the kiln) shall be exactly opposite to and in a line with the corresponding pair on the other side, so that by inserting iron rods from one end of the kiln to the other, transversely through the fire-places, the entire mass of burned lime may be agitated and displaced; and, second, by causing the discharge-channel E to intersect the oval-shaped hopper on a line with its longest diameter, thus facilitating the discharge of the lime, and diminishing the danger of choking up the mouth of the hopper.

Having thus described my improvement, I claim and desire to secure by Letters Patent of the United States—

In a limekiln having an oval cupola, F, four separate fire-places, A A A′ A′, arranged in pairs opposite to and in a line with each other, to intersect the cupola at its shortest diameter, in combination with a discharge-channel, E, intersecting the oval-shaped hopper in a line with its longest diameter, substantially as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MICHAEL CALLAN.

Witnesses:
D. BLACKLEY,
JOHN CALLAN.