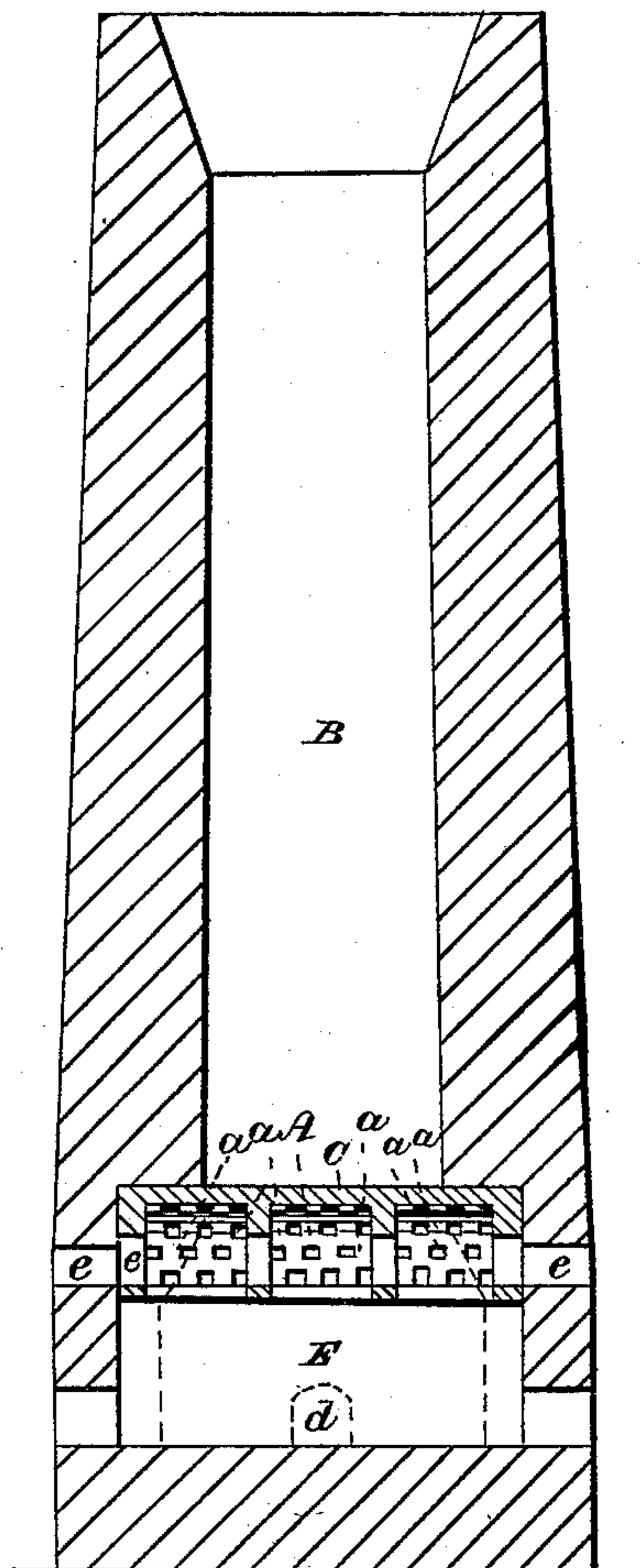


### Lime Kiln.

Patented Nov. 3, 1857.

*Fig: 2.*



# UNITED STATES PATENT OFFICE.

A. G. ANDERSON, OF QUINCY, ILLINOIS.

## LIME-KILN.

Specification of Letters Patent No. 18,531, dated November 3, 1857.

*To all whom it may concern:*

Be it known that I, A. G. ANDERSON, of Quincy, in the county of Adams and State of Illinois, have invented a new and useful Improvement in Lime-Kilns; 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—

Figures 1 and 2, are central vertical sections, taken at right angles to each other, of a kiln constructed according to my invention.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in a certain improvement in the so-called "continuous" or "perpetual draw" lime-kilns.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A, is the furnace situated under the center of the cupola B, and arched over with a fire-brick arch C, in which there are numerous orifices *a*, for the escape of the flame and products of combustion from the furnace up through the cupola. This furnace extends lengthwise right across the bottom of the cupola, as shown in Fig. 1, but not the whole width of the cupola, as I make a throat *b* on each side of it for the withdrawal of the lime from the cupola.

D, D, are chambers at the bottom of the throats *b*, *b*, for the reception of the lime; and *d*, *d*, are doors through which the lime is withdrawn from the chambers D, D.

*e*, *e*, are the furnace doors.

E, is the ash pit.

F, F, are sliding dampers to close the throats *b*, to prevent a draft of cold air through them into the cupola while the lime is being withdrawn.

*f*, *f*, are passages in the walls of the cupola for the upward escape of gases from the lime in the chambers D, D, as the lime is being withdrawn from the kiln. These passages are so arranged as to be closed by the dampers F, F, when the latter are drawn out, as shown at the right side of Fig. 1, to open the throats *b*, *b*, but as to be open when

the dampers are pushed in, as shown to the left of Fig. 1, to close the throats *b*, *b*.

*g*, *g*, are holes in the wall of the cupola arranged in a horizontal row above each of the dampers F, F, to allow a number of bars *h*, to be pushed through till their ends rest upon the arch of the furnace, as shown at the right side of Fig. 1, to support the limestone above the dampers F, F, while the lime is being withdrawn, also to admit of the damper being forced up to the cone to close the throats *b*, *b*, of the furnace.

This kiln is charged in the usual way at the top, and when in operation, except at the time of drawing the lime, the dampers F, F, are drawn out and the bars *h*, *h*, omitted leaving the throats *b*, *b*, unobstructed for the free descent of lime into the chambers D, D, which should be closed at *d*, *d*. The drawing of the lime is effected in the following manner at either side of the kiln: The bars *h*, *h*, are first driven through the openings *g*, *g*, and through the solid mass of burnt lime in the throat *b*, till they rest on the arch C, and then the door *d* opened, and enough lime drawn to clear the throat so that the damper may be slid up to the arch C, without obstruction, after which the whole of the charge in the chamber D, is drawn by rakes or other suitable tools. After the chamber D, has been emptied, the door at *d* is closed, and first the damper F and then the rods *h*, *h*, are withdrawn, to let the contents of the lower part of the cupola descend into the chamber as fast as they will, which will not be immediately but at intervals as the limestone is changed by heat. The chambers D are emptied in the above manner as often as necessary, and as soon as they have been emptied they begin to fill again as described.

This construction of the kiln affords great facility for drawing the lime, and what is of the greatest importance, effectually prevents cold drafts of air passing up the cupola during the operation of drawing the lime, while at the same time, and by the same movement, the apertures are opened for the escape of the gases in such a manner as not to annoy the workmen while engaged in drawing the lime.



What I claim as my invention, and desire to secure by Letters-Patent, is:

The combination of the perforated arch C, and escape passages *f, f*, with the throats  
5 *b, b*, chambers D, *D*, dampers F, F, holes *g, g*, and supporting and removable bars *h, h*, the same being constructed and ar-

ranged for joint operation substantially as and for the purpose set forth.

A. G. ANDERSON.

Witnesses:

A. W. ANDERSON,

W. ROBERTSON.