

(No Model.)

J. CONLEY.  
BRICK KILN.

No. 513,038.

Patented Jan. 16, 1894.

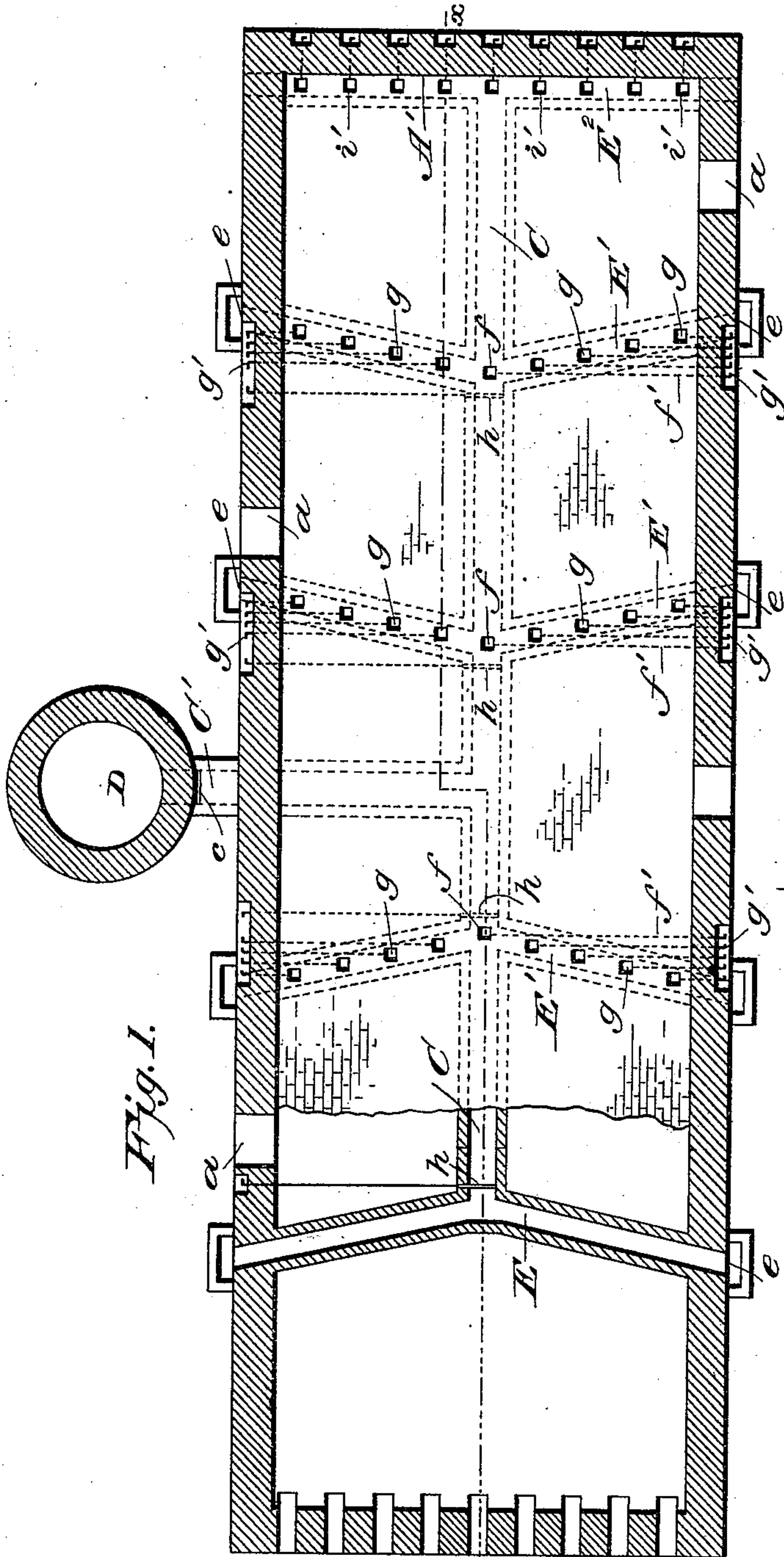


Fig. 1.

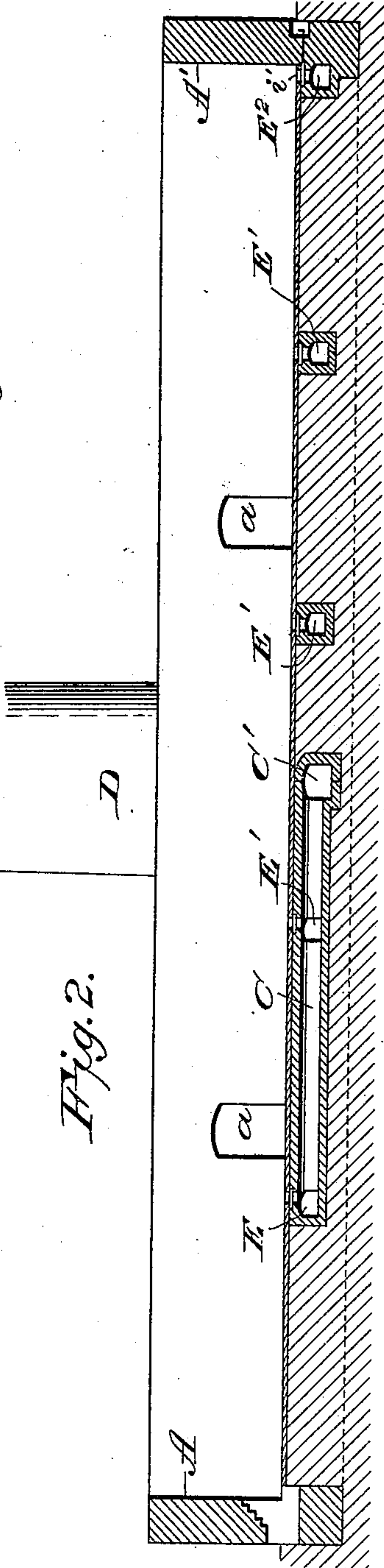


Fig. 2.

WITNESSES  
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INVENTOR  
Joseph Conley.  
by [Signature] Attorney



# UNITED STATES PATENT OFFICE.

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## BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 513,038, dated January 16, 1894.

Application filed July 15, 1893. Serial No. 480,639. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH CONLEY, a citizen of the United States of America, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Brick-Kilns; and I 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.

This invention relates to improvements in that class of kilns known as down-draft brick-kilns; and it consists in the construction of the kiln, as will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a horizontal sectional view of a kiln constructed in accordance with my invention. Fig. 2 is a vertical section taken on the line  $x-x$  of Fig. 1.

The kiln illustrated is a rectangular kiln with an open top.

The end wall A of the kiln is provided with furnaces for starting the fires, and the side walls at intervals are provided with doorways  $a$  which are above the ground level and provide access to the kiln in stacking and removing the bricks.

In constructing the kiln I provide a main longitudinal flue C which extends from the end wall A' to a cross-flue E located near the end wall A. This main flue connects by means of an underground flue C' with a chimney or stack D which is located beyond one of the side walls of the kiln so as not to be affected by the heat generated in the kiln.

E' E' designate underground cross-flues which lead to draft openings  $e$  located just outside the side walls and walled in to prevent debris from entering the flues. These cross-flues do not extend directly across the kiln but diagonally toward the main flue and meeting thereat. The angle of the cross-flues is toward the exit flue C', and by this arrangement the draft toward the chimney is facilitated and a more convenient manner of operating the dampers or cut-offs in the upper part of the flues is provided.

Adjoining the end wall A' of the kiln is a straight flue E<sup>2</sup> which extends through the side walls of the kiln and connects at its central portion with the main flue C. This flue communicates with the interior of the kiln by means of the openings  $i'$  which are provided with dampers the operating rods of which extend through the end wall.

It will be noted that all the flues are underground and are not for the purpose of conveying heat to the bricks to be burned but are for the purpose of either supplying air to the fuel or for cooling the bricks should they become overheated and after they are burned.

The longitudinal or main flue is provided at its intersection with the cross-flues with openings which lead into the interior of the kiln, and said openings are provided with dampers  $f$  operated by rods  $f'$  which extend through the side walls. The cross-flues E E are also provided with openings which lead into the interior of the kiln and are provided with dampers  $g$  operated by damper rods  $g'$ . It will be noted that by disposing the cross-flues diagonally as shown the damper rods extend directly to and beyond the side walls and will be on a line with each other horizontally so that the position of said damper rods will readily indicate the location of the dampers connected thereto. The main flue is intersected to one side of each of the cross-flues by dampers or cut-offs  $h$  the operating rods of which extend through one of the side walls into the recesses provided for the outer ends of the rods  $f' g'$ .

By the construction hereinbefore described the flues are located below the floor level of the kiln and the side walls can be built in a substantial manner so that they will not be affected by the heat. Consequently a kiln constructed in accordance with my invention is a permanent one, and it will be noted that as the draft stack or chimney is some distance from the kiln it may be used for the driers, boilers, &c., used in connection with the manufacture of bricks; and if a stack is already constructed the flue C' can be extended to connect therewith.

The flue C' has a suitable cut-off  $c$ , located between the side wall of the kiln and the stack.



In practice the kiln is burned in sections, the fire being started in the furnaces at one end, and after the center of the kiln is reached by the fires the draft and water smoke are drawn back under the burning brick to the stack. The green brick is stacked to provide small longitudinal flues which are about nine inches or the length of one brick apart and are about four inches wide and twelve inches high.

The fuel used to feed the fire is slack coal which is fed in small quantities from the top, slack coal being preferred as it is at once converted into gas and gives an intense and uniform heat.

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

1. In a down-draft kiln, the combination, of a central longitudinal underground flue C which communicates with a draft stack through an exit flue C', cross-flues E E which extend from the central flue diagonally to and beyond the side walls and are provided with openings which lead into the interior of the kiln, dampers or cut-offs for said openings the operating rods of which extend directly to the side walls and through the same, substantially as shown, and for the purpose set forth.

2. In a down-draft brick kiln, the combination, of a central longitudinal flue C, cross-flues E E extending from the central flue di-

agonally to the side walls and through the same, the central flue and cross-flues communicating with the interior of the kiln through openings in the floor of the same, cut-offs located in said openings, the operating rods of which are located beneath the floor of the kiln and extend directly to and beyond the side walls of the kiln, said rods being on the same horizontal plane, substantially as shown, and for the purpose set forth.

3. In a down-draft brick kiln comprising inclosing walls constructed substantially as shown and provided at one end with a plurality of furnaces; a central longitudinal flue which communicates with an exit flue leading to a draft-stack, a series of underground flues which extend from the central flue diagonally to and beyond the side walls, protecting walls located beyond the outer ends of the flues E, the side walls having recesses through which pass the rods which operate the dampers located within the central flue and those in the openings which connect the cross-flues with the interior of the kiln, substantially as shown, and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH CONLEY.

Witnesses:

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E. A. BRIGGS.