

S. M. HAMILTON.

Brick Kiln.

No 99,886.

Patented Feb. 15, 1870.

FIG. 1

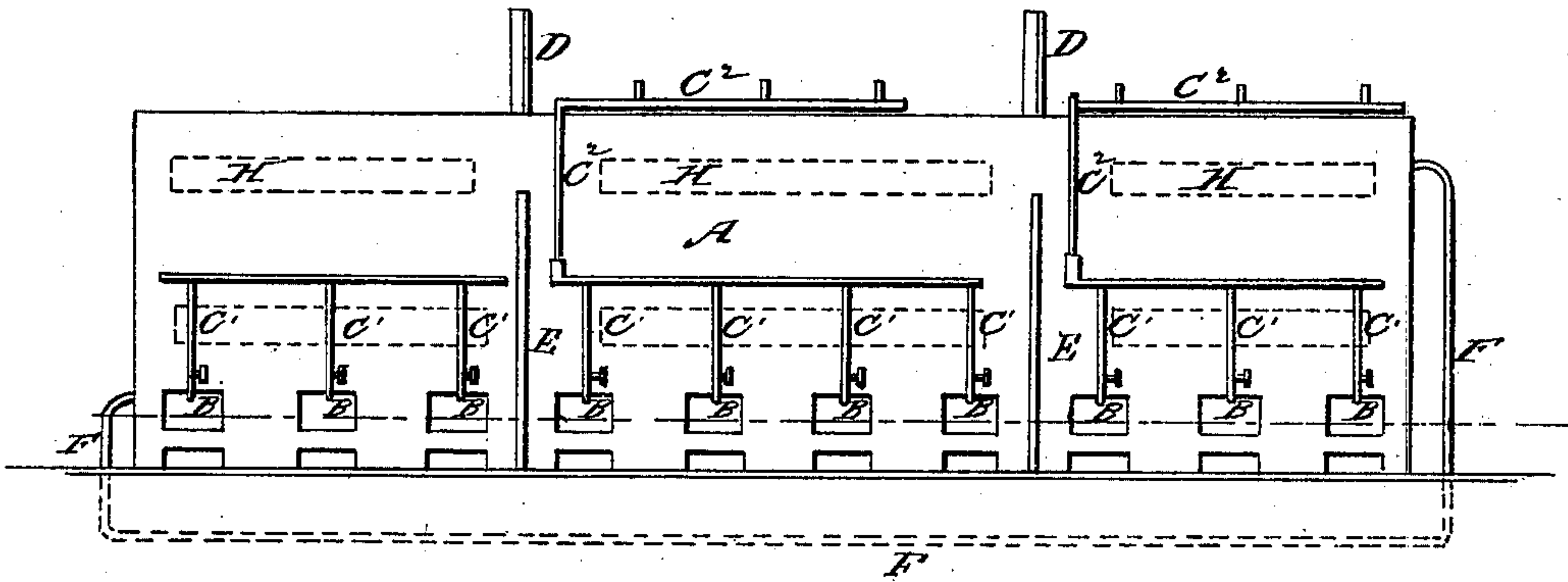


FIG. 2

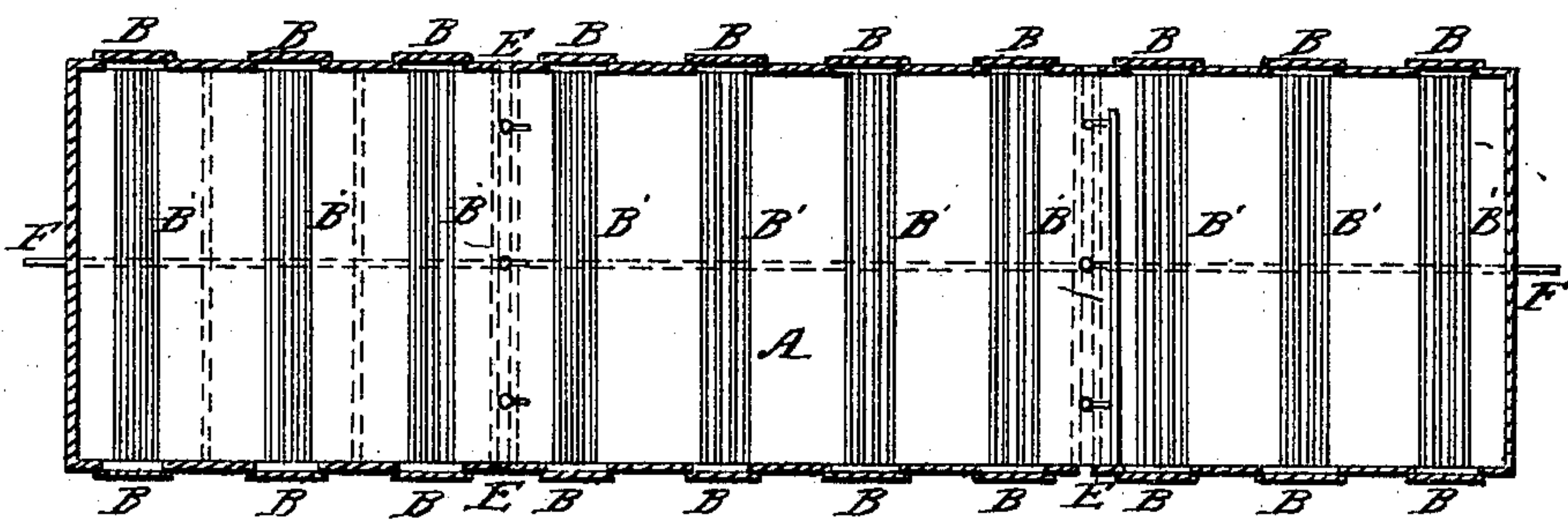


FIG. 3

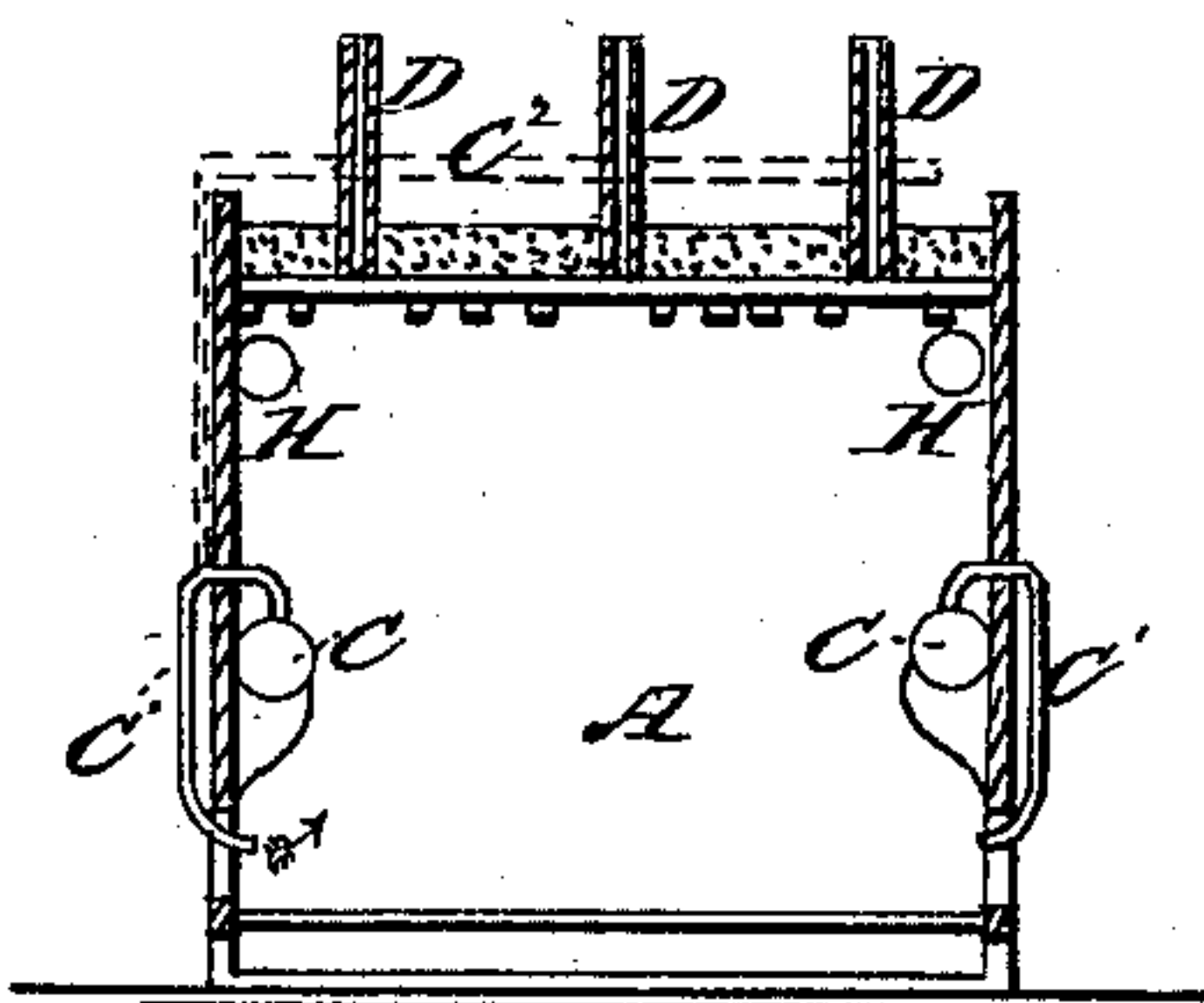
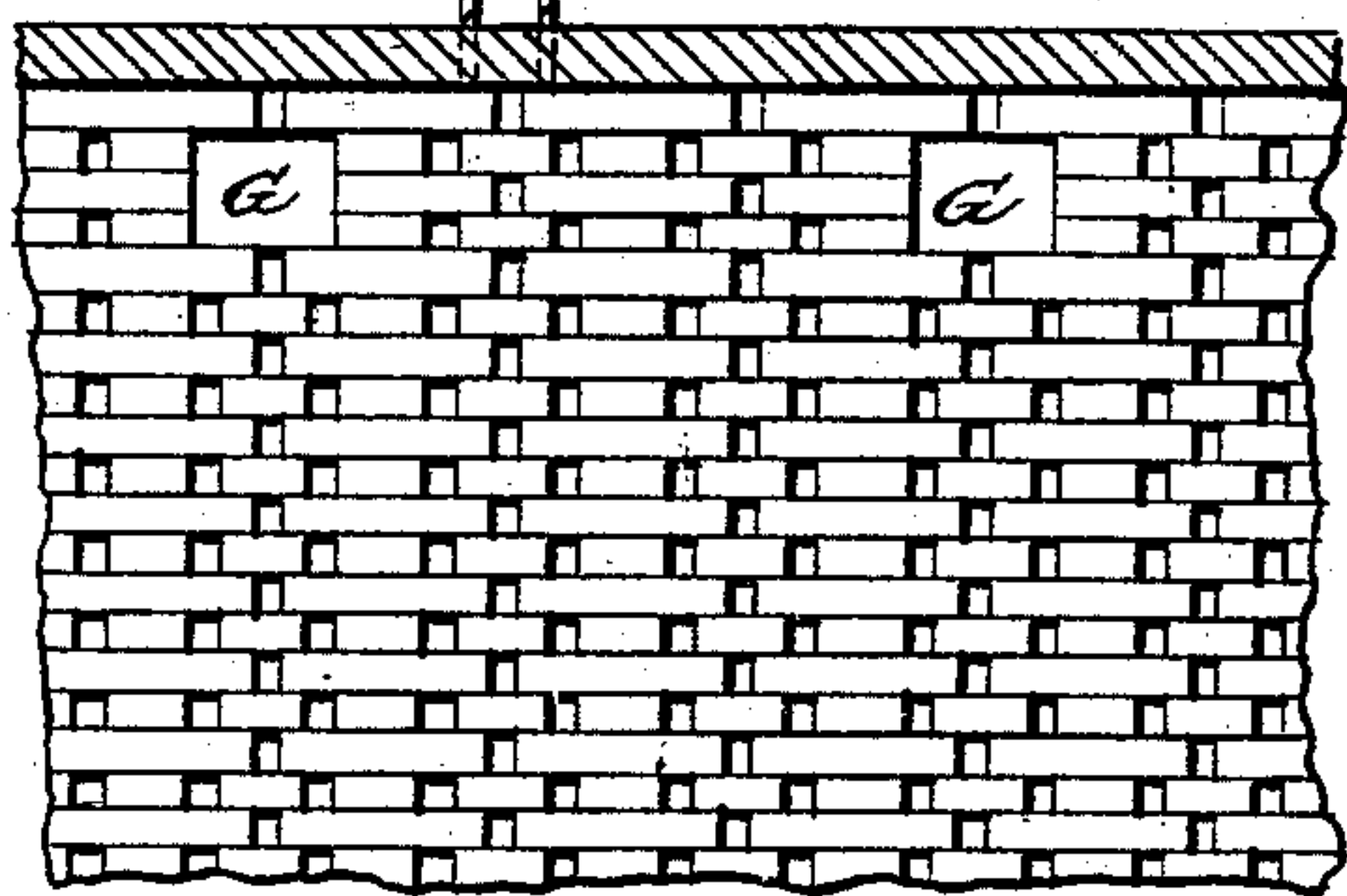


FIG. 4



WITNESSES:

*A. Rupperts.*

INVENTOR:

*S. M. Hamilton*  
*by B. D. Mollaway & Co. Attys*



# United States Patent Office.

SILAS M. HAMILTON, OF BALTIMORE, MARYLAND.

Letters Patent No. 99,886, dated February 15, 1870.

## IMPROVEMENT IN BRICK-KILNS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, SILAS M. HAMILTON, of the city and county of Baltimore, and State of Maryland, have invented certain Improvements in Brick-Kilns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings making part of this specification, in which—

Figure 1 is a side elevation.

Figure 2 is a horizontal section.

Figure 3 is a vertical transverse section.

Figure 4 is a vertical section on an enlarged scale, showing the construction of the upper circulation flues in the green bricks.

The same letters are used in the several figures to indicate identical parts.

My improvement relates to that class of kilns in which a series of compartments are constructed in the body of the kiln, which, when filled with green brick, are successively fired, the waste heat from one being drawn through the next compartment in the series, for the purpose of carrying away the water smoke and drying the bricks preparatory to burning; and

My invention consists in a novel arrangement of the compartments and of the parts for carrying on the usual operations, to be hereinafter set forth.

In the annexed drawings—

I have shown at A the wall of a permanent rectangular kiln, said wall forming a single apartment; which, however, may be divided into a series of compartments by sliding doors.

B B are the furnaces, and B' B' the fire-grates. The fires are built in the furnaces in the ordinary manner, and the green bricks so built as to form arches, and to leave interstitial spaces for the free circulation of the draft through the mass of green bricks.

Steam generators C are built into the permanent walls of the kiln, or constructed separately therefrom with independent furnaces, as may be preferred.

From these boilers pipes C<sup>1</sup> conduct jets of steam to be discharged into the furnaces above the fires, to force the draft through the body of the green bricks in the kiln.

Other pipes, C<sup>2</sup>, are carried from the boilers and made to discharge jets of steam into the chimneys D.

In order that the cover of the kiln may be removed the steam-pipes C<sup>2</sup> are made to turn upon swivel-joints, which permit the horizontal section of the pipes C<sup>2</sup> to be turned so as to pass the jets from the branch pipes into the chimneys, or swung out of the way.

The chimneys I propose to make of fire-clay, like ordinary chimney-pots, so that they may be removed from place to place as desired. They should be constructed with slots in the sides, so as to permit the

branch jet-pipes to be inserted when the holes may be filled with wet clay.

Vertical openings E are formed at intervals in the walls A, through which sliding metallic doors may be passed to cut off entirely the connection between one part of the chamber and another.

The chimneys will be placed on the top of the compartments, nearly above the sliding partitions, so that by inserting the steam-jets the draft may be carried out of the compartment at that point.

The two ends of the kiln are connected by the return flue F, which I prefer to carry under ground. This flue will be closed by valves or doors, so that, when desired, by opening the doors the draft may be drawn from the compartment at one end to that of the other; and by this means a continuous operation be conducted, the chambers being successively fired. This return flue passing under the floor of the kiln will in its passage impart heat to the lowest stratum of bricks in the compartment.

When the kilns have been filled they are to be covered with bricks and clay piled upon them, to prevent the upward passage of the draft except through the chimneys.

In constructing the covering care should be taken to form longitudinal flue openings along the upper surface of the bricks, as shown at G in fig. 3, for the purpose of inducing a free circulation of heat over the entire upper portion of the kiln, and thus equalizing the heat in the top thereof.

The steam-pipes C<sup>1</sup> are carried within the chamber of the kiln into a super-heating pipe or coil, H, so that the jets of steam thrown into the furnace shall be jets of super-heated, not saturated steam.

In firing the kiln I propose to build the fires alternately in the furnaces at opposite sides of the kiln.

In filling the kiln with green bricks I propose to build them so as to leave spaces at intervals, so as to divide the mass into blocks of bricks, between which there may be a free circulation of heat, and from these spaces the draft will be carried in the ordinary manner through the interstitial spaces between the bricks.

The movable chimneys may be inserted wherever it is desirable to draw out the draft.

What I claim, and desire to secure by Letters Patent, is—

1. A continuous kiln A, divisible into compartments by sliding doors, in combination with removable chimneys and steam-draft jets, substantially as set forth.

2. In combination with a continuous kiln and chimney D, the steam-pipe C<sup>2</sup> arranged to swing on a joint, substantially as set forth.

3. In combination with a kiln and steam-jet pipe,

removable slotted chimney-pots, substantially as and for the purpose set forth.

4. In combination with the kiln A and steam-draft jets, the upper circulation flues G built in the body of green bricks placed in the kiln, substantially as described.

5. In combination with the kiln A and its furnaces, the jet-pipes O' and super-heating pipes H, substantially as set forth.

6. In combination with the kiln A, divisible into

compartments, a return flue F, carried from end to end under the floor of the kiln, substantially as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

S. M. HAMILTON.

Witnesses:

B. EDW. J. EILS,  
A. RUPPERT.