

A. B. WEEKS.

Lime Kiln.

No. 19,525.

Patented March 2, 1858.

Fig. 2,

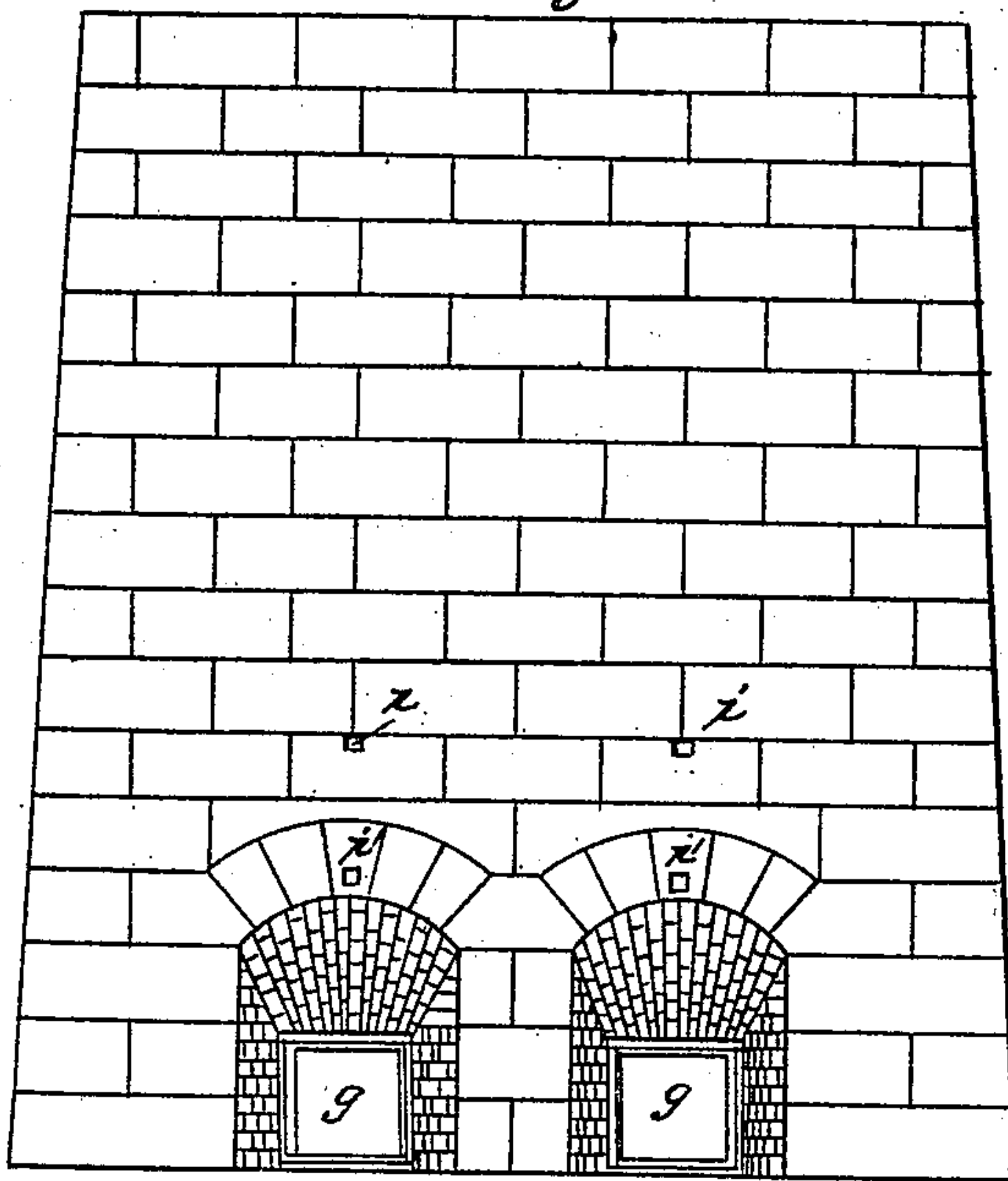
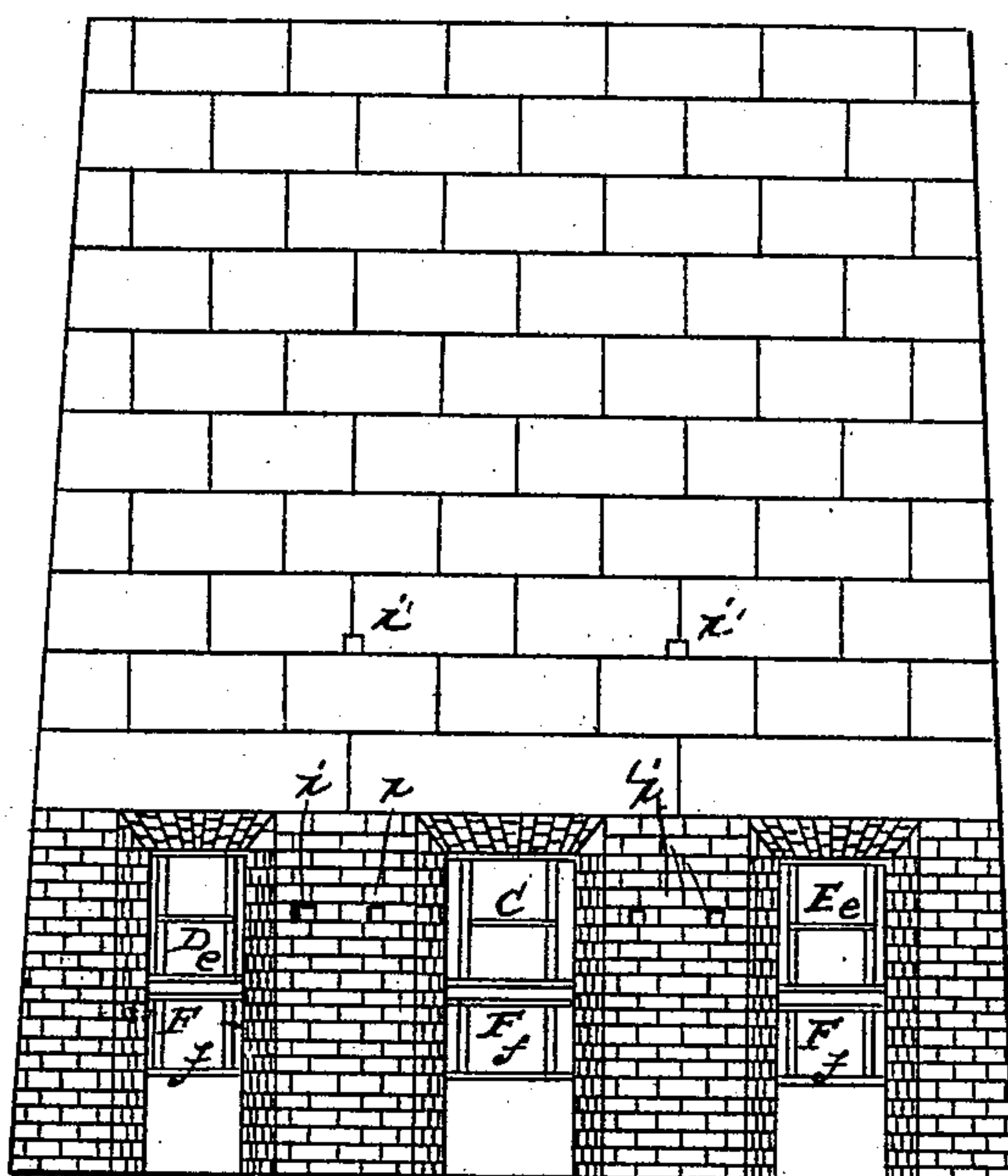


Fig. 1



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Fig. 3,

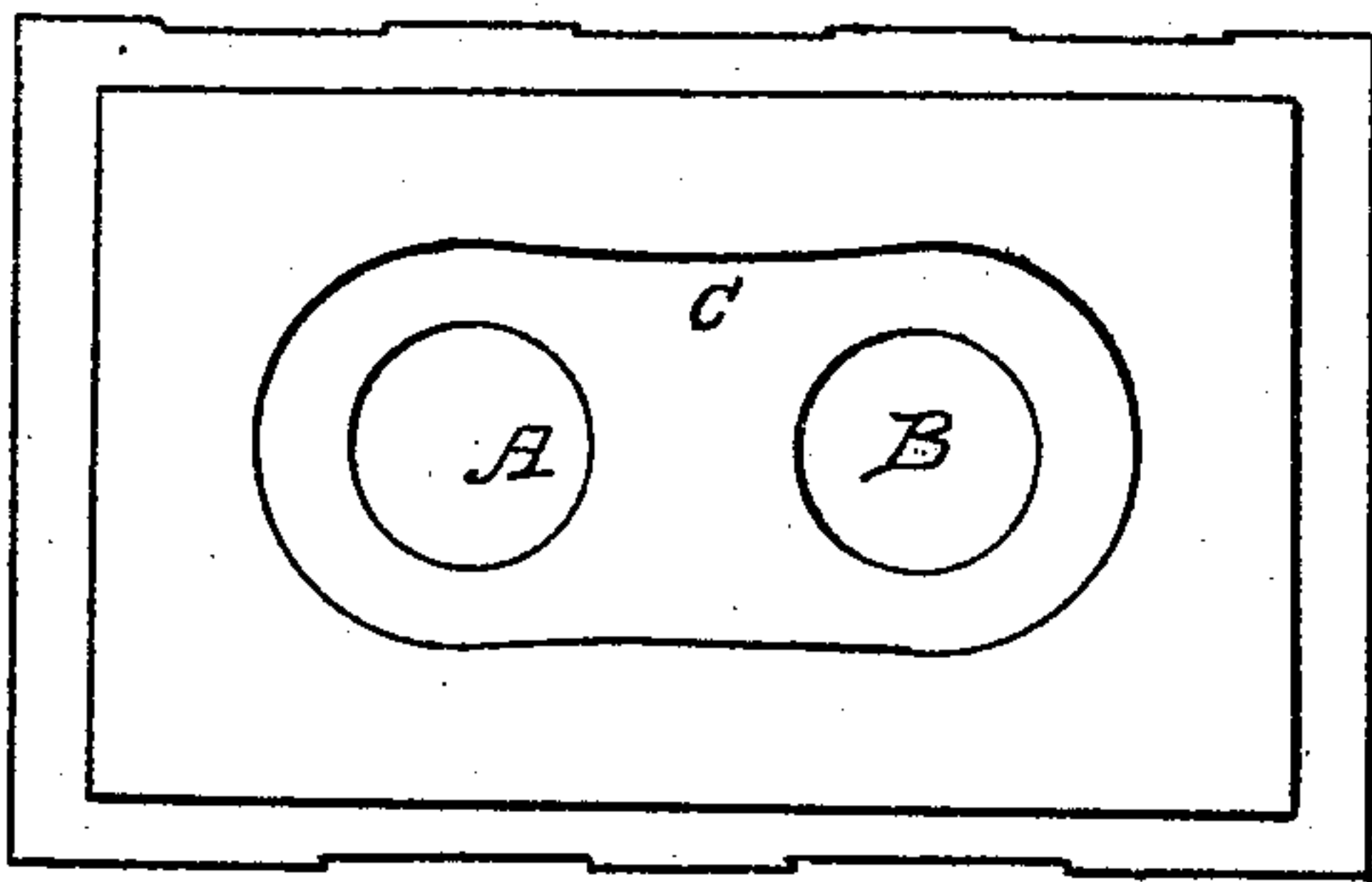


Fig. 4,

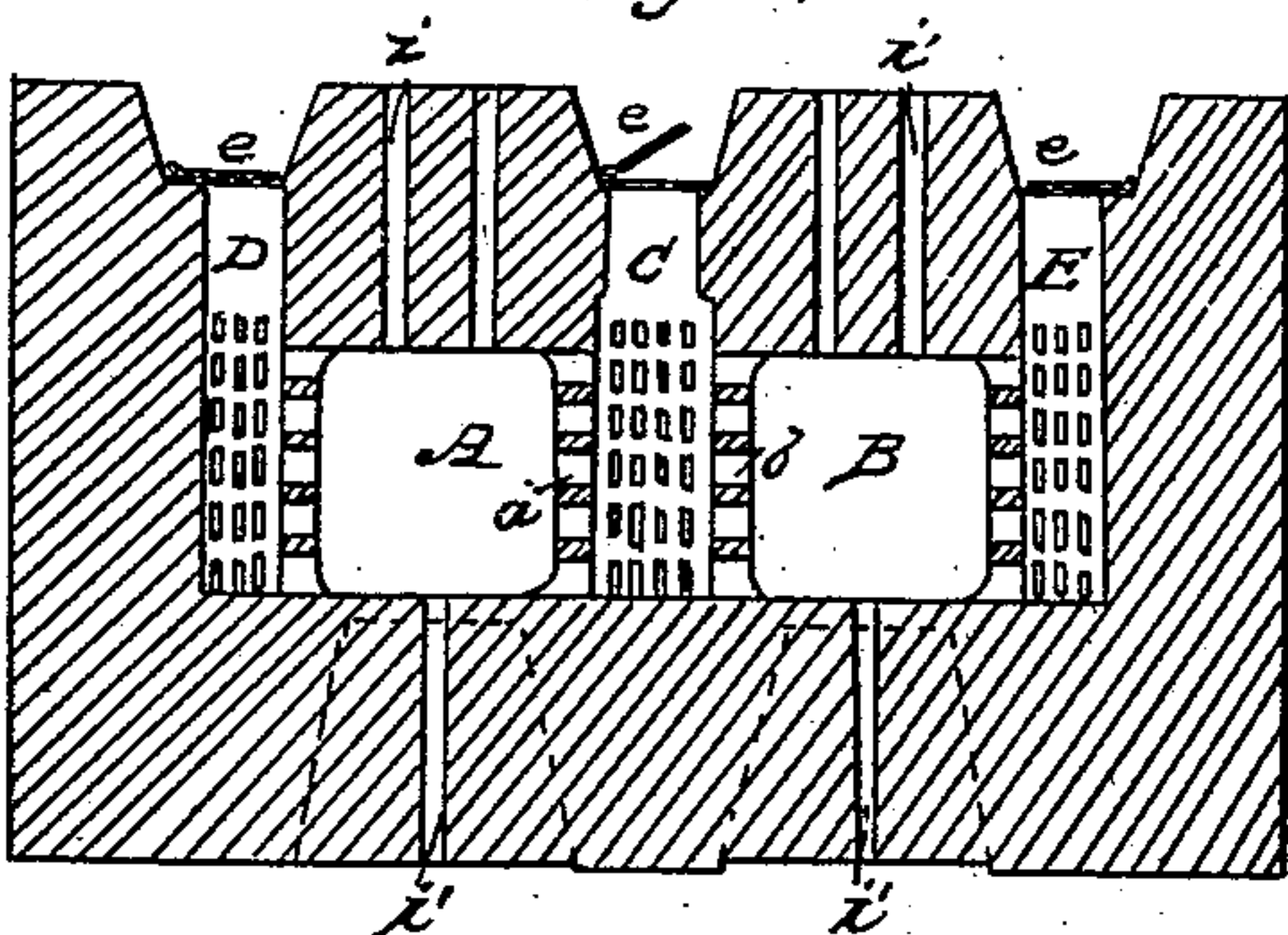


Fig. 5,

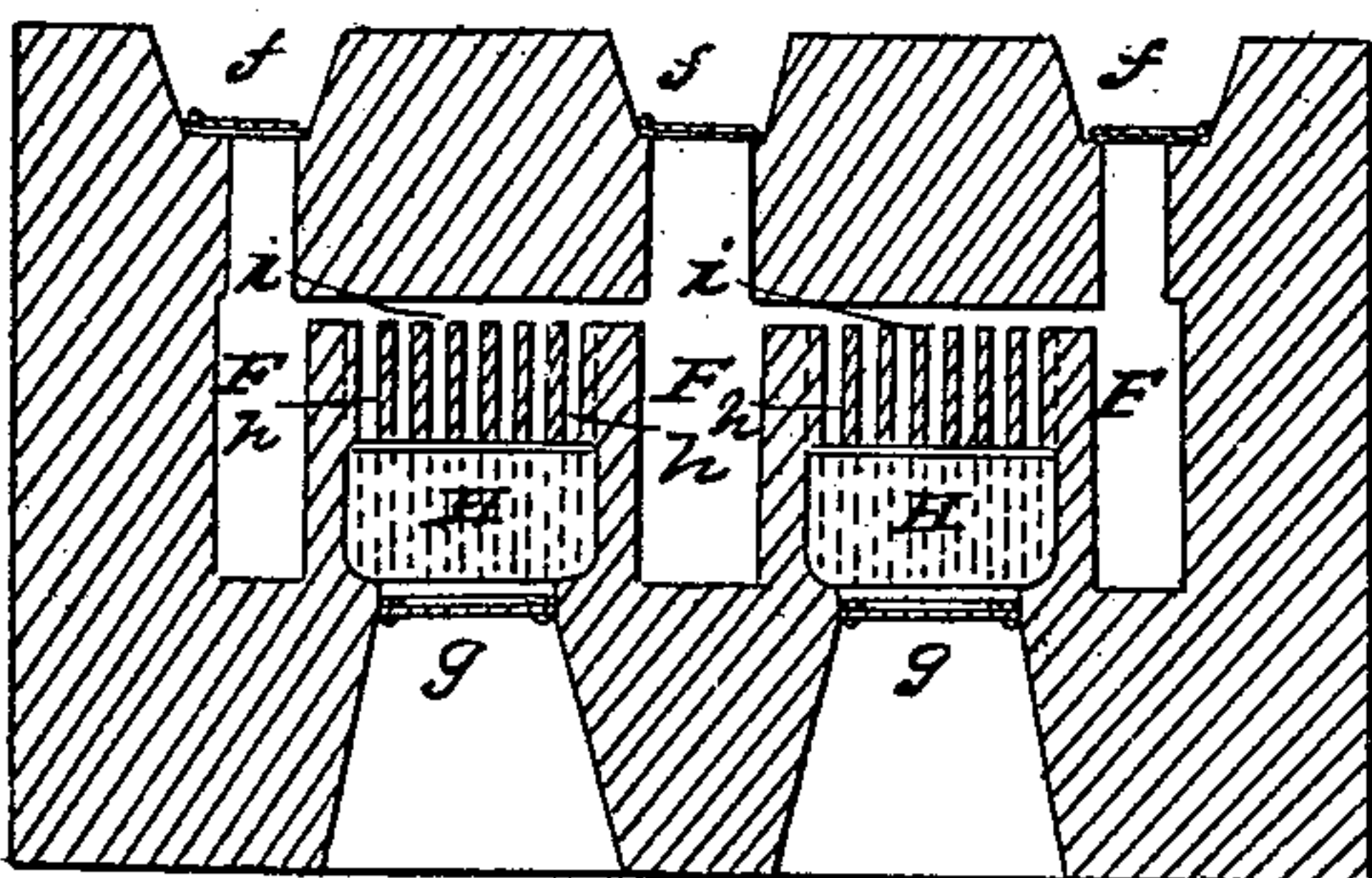


Fig. 1,

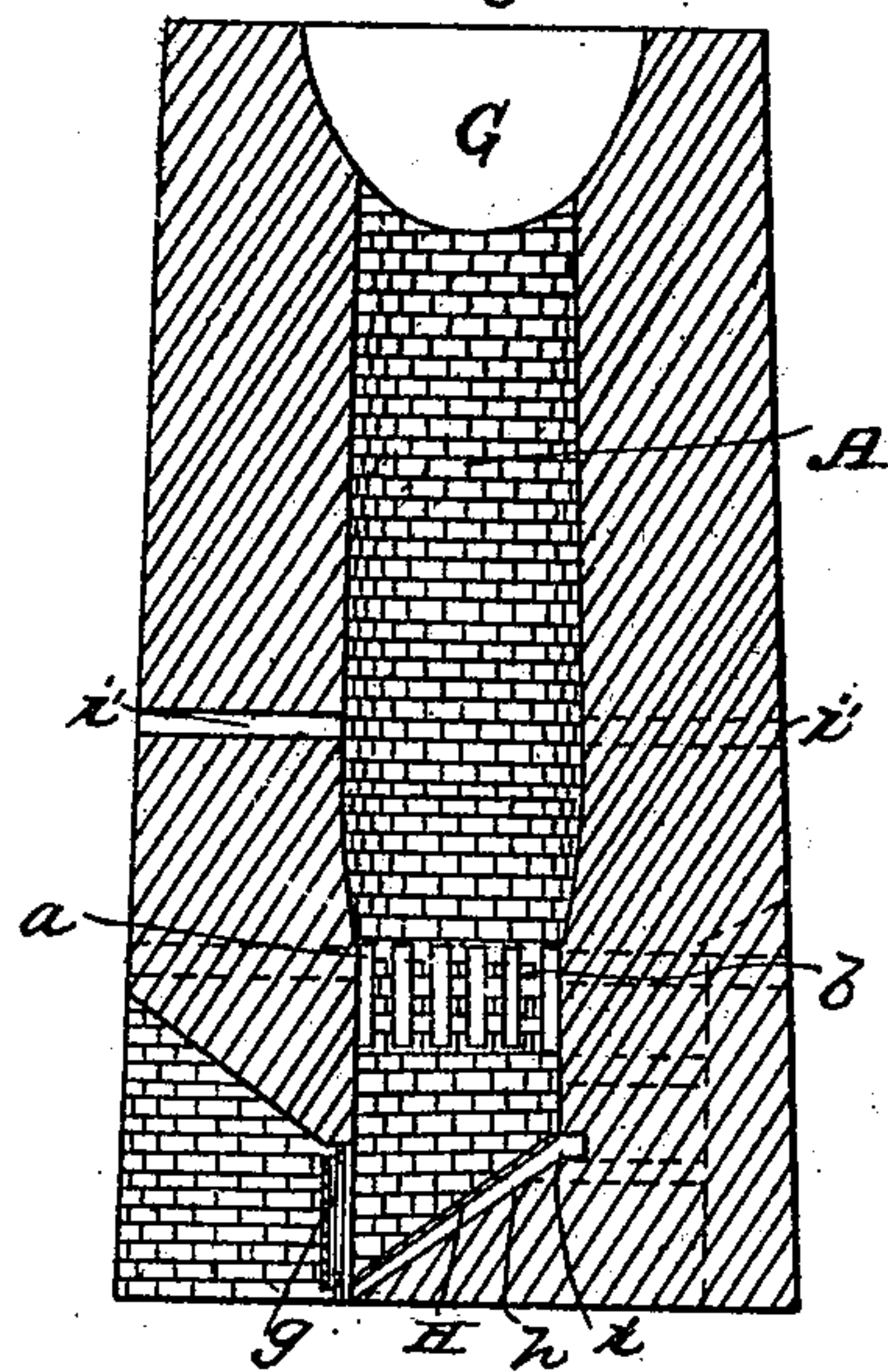
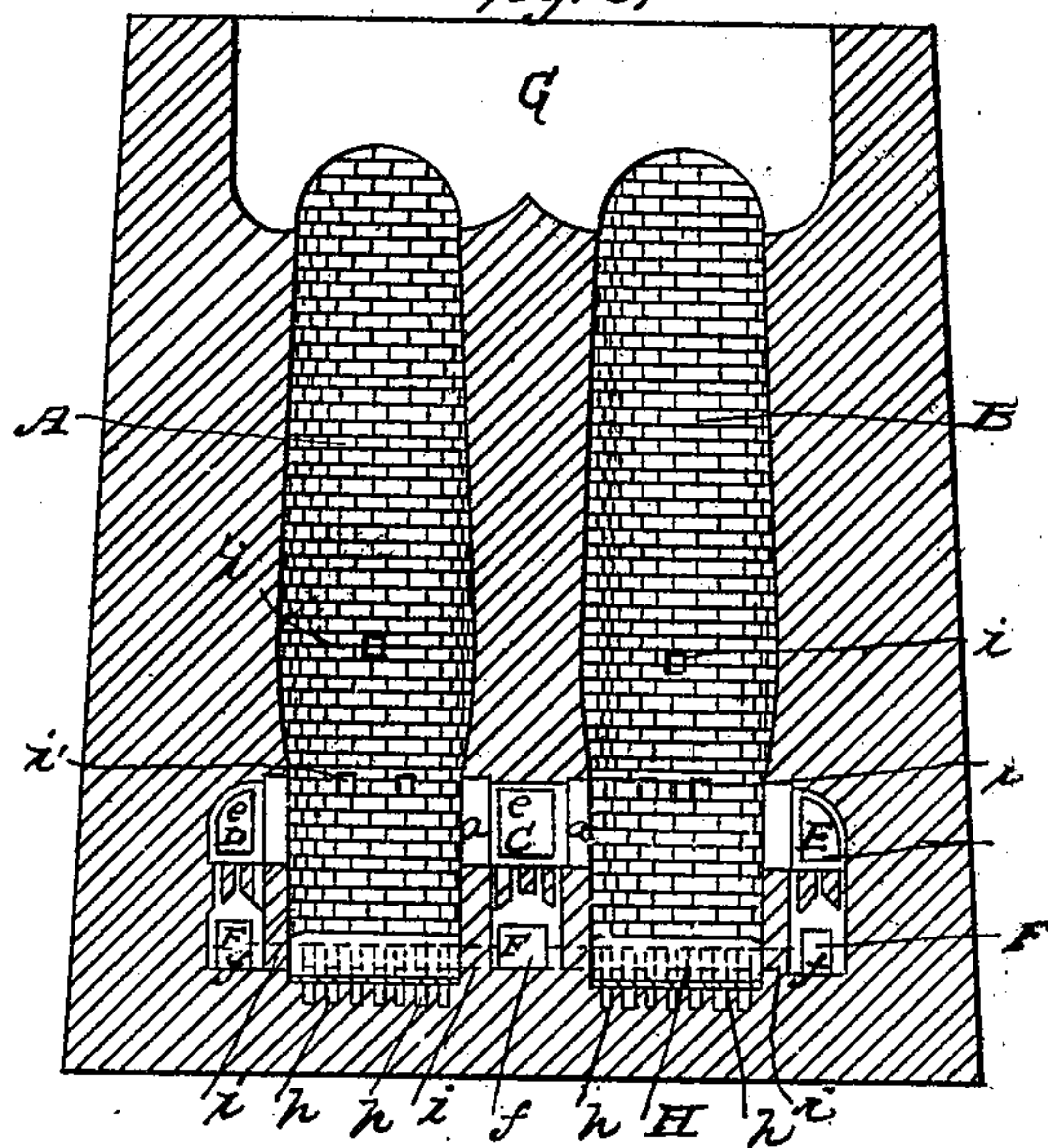


Fig. 6,



UNITED STATES PATENT OFFICE.

ABNER B. WEEKS, OF ROCKLAND, MAINE.

LIME-KILN.

Specification of Letters Patent No. 19,525, dated March 2, 1858.

To all whom it may concern:

Be it known that I, ABNER B. WEEKS, of Rockland, in the county of Lincoln and State of Maine, have invented an Improved
5 Kiln for Burning Lime; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, denotes a side elevation of the
10 said kiln; Fig. 2, a rear elevation of it; Fig. 3, a top view of it; Fig. 4, a horizontal section taken through the fireplaces; Fig. 5, a horizontal section taken through the ash pits and showing the air passages leading
15 into the same from the air passages below the hearths of the stacks; Fig. 6, is a longitudinal and vertical section taken through the two stacks; Fig. 7, is a transverse and vertical section taken through one of the
20 stacks.

In the drawings, A, and, B, represent two stacks or barrels, as they are sometimes termed, they being arranged near together, and to the fire place or furnace, C, placed
25 directly between the two and made to open into each by openings through its opposite sides as shown at, *a*, and, *b*, in Figs. 4, and 7. Besides such fireplace, each of the stacks is provided with another arranged respec-
30 tively as shown at, D, and, E. Under each fireplace, is an ash pit, F. The mouths of the said fire places and ash pits are furnished respectively with doors, as shown at
35 *e*, *e*, *e*; *f*, *f*, *f*, in Figs. 1, 4, and 5. Both of these stacks A, B, open at top into one receiving hopper, G, and each stack is furnished with an inclined hearth, H, whose
40 upper surface is at an inclination of about 45°, and slopes toward the discharging mouth or door *g*, of the stack. This bottom or hearth may be formed of a plate of cast-iron having a flat upper surface such plate
45 being made to rest over a series of parallel air passages *h*, *h*, *h*, leading into one common passage *i*, (see Figs. 5, 6, and 7,) made to open into the adjacent ash pits of the furnaces on opposite sides of the stack. In
50 consequence of this arrangement of air passages with respect to the hearth the air for the supply of the ash pit and fuel may be caused to pass underneath the hearth before it enters the ash pits and passes through
55 the fuel, the result being that not only will the calcined lime on the hearth be cooled down but the air will be heated by heat radiated from the hearth, and as a matter

of course will facilitate the combustion of the fuel, and thus economize the working of the kiln. Furthermore, the inclined
60 hearth facilitates removal of the calcined lime from the stack. Each stack is to be furnished with poke holes *i'*, *i'*, the form of the stack not differing materially from others in common use.

The advantage of my arrangement and
65 combination of three fire places and two stacks is of great economy in working both stacks, as whenever, the charge of either, may have become sufficiently roasted, we
70 can turn all the heat of the middle fire place, and thus save so much heat, while we may be discharging from the other stack, the roasted lime. In order to cause the heat
75 of the central fireplace to pass entirely into either stack, we have only to suffer the fire that may be in the lateral fire place, of the
other stack to go down. The increased draft of the first stack, will cause all the heat of the middle furnace to be drawn
80 into it. Furthermore, the employment of one hopper with two stacks opening directly into it is advantageous, as it enables a larger mass of lime stone to be heated,
85 than when a separate hopper for each stack is used, and besides this, it enables the large hopper to be used for either stack, while the other is having any of its contents withdrawn. It is advantageous in other respects.
The flat hearth with air passages under it, has an advantage over an air pipe or con-
90 ductor placed in the kiln and on, or just above the top surface of the hearth, for this latter tends to clog the lime and obstruct its withdrawal from the kiln, whereas my arrangement presents no obstruction to the
95 removal of the lime from the kiln.

I do not claim any of the devices shown in the patent of Aaron Jeffries, dated April 21st, 1857; nor any of those shown in the
100 patent of Isaac Richardson dated Feby. 21, 1840; nor do I claim a single stack having at its top a single mouth of discharge and at its bottom or lower part a wall to extend above such bottom about one third
105 the height of the stack, the same being as shown in Hebert's Cyclopedia vol. 2, page 16, but

1. I claim my improved arrangement of a single hopper with respect to two separate
110 stacks such being placed at or over their upper ends and so as to flare and increase in width from them upward and communicate

with them as represented in the accompanying drawings, and as above described.

2. I also claim arranging air or cooling passages horizontally or with the inclinations as described under broad flat hearths of any suitable material in the manner and for the purpose as set forth, and in combination and connection with the furnace of a lime kiln by means of pipes or passages

constructed and relatively arranged as 10 specified.

In testimony whereof I have hereunto set my signature.

ABNER B. WEEKS.

Witnesses:

R. H. EDDY,

F. R. HALE, Jr.