

R. A. SMITH.  
Brick-Kiln.

No. 133,127.

Patented Nov. 19, 1872.

Fig. 1.

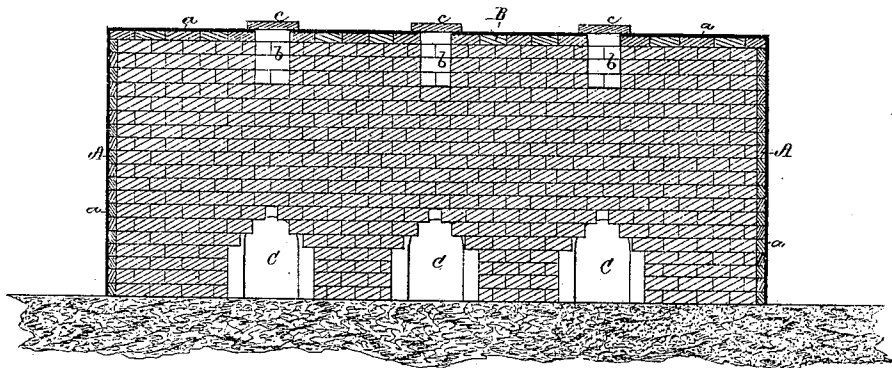


Fig. 2.

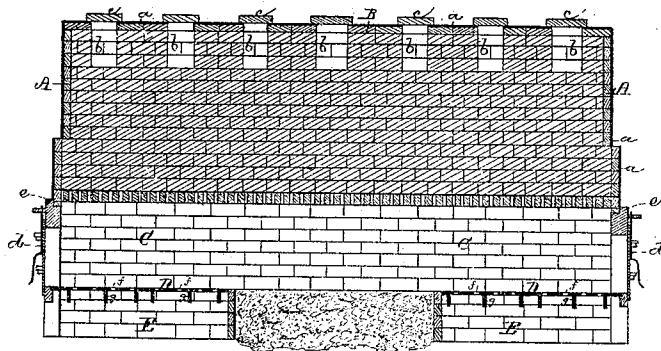


Fig. 3.

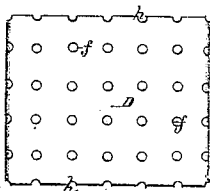


Fig. 4.

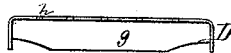
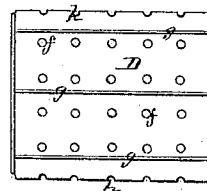


Fig. 5.



Witnesses  
S. N. Piper.  
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# UNITED STATES PATENT OFFICE.

ROBERT A. SMITH, OF NEWBURYPORT, MASSACHUSETTS.

## IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. 133,127, dated November 19, 1872.

*To all whom it may concern:*

Be it known that I, ROBERT A. SMITH, of Newburyport, of the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Brick-Kilns; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figures 1 and 2 are transverse sections of a brick-kiln provided with my invention.

The kiln in question is to be constructed with its top and sides composed of burnt bricks plastered with clay. It is also to have a series of smoke-educts through the top, furnished with covering-brick or other equivalents, the bricks to be burnt being arranged in the usual manner, with spaces between them for the passage of the heat and products of combustion. This kiln is also to have one or more passages extended horizontally through it from front to rear, there being at each end of each of such passages a grate having an ash-pit below it. Between the two grates there is a space for reception of wood, the floor of such space being level with the tops of the two grates. Each of such grates is composed of a series of plates laid edge to edge and over the top of the ash-pit, each plate being perforated with numerous holes, and there being at each edge of such plate, which is to abut against the edge of another such plate, a series of notches or semi-holes. Each plate on its under surface is crossed by a series of parallel ribs or iron bridges, they and the plate being cast together in one piece of metal.

In the drawing, the burnt-brick sides and top of the kiln are shown at A A A A, and B, the exterior layer of plastering or clay, being described at *a*. The smoke-escape educts are shown at *b b b*, and their covering-plates at *c c c*. The long grated passage or compound wood and coal furnace is shown at C as having at its extremities fire-doors *d*, supported by framings *e e*; also, as having the two grates D D, and their ash-pits E E. In erecting the brick-kiln, the grates and bottom of each of the passages C are to be even with the surface of the ground, the ash-pits being below such. The bricks to be burned are to be laid so as to form those portions of the passages C which extend between their mouths in the outer linings A A.

A section-plate of each grate is shown in

top view in Fig. 4, and in end view in Fig. 5, and bottom view in Fig. 6, *f* showing the holes of the plate, *g g g* the ribs, and *h* the edge-notches or semi-holes. When two of the plates are abutted together, the edge-notches of one form holes with those of the other.

It is intended to burn bituminous coal on the pair of grates of each passage C, and wood in the passage-space between the grates, the two kinds of fuel thus used in combination enabling me, as practice has demonstrated, to burn a kiln of bricks at about half the expense required to accomplish the same by wood or coal alone. With full fires on the two grates, wood can be burned in the passage-space between them, so as to regulate the heat of the kiln as may be necessary in order to effect the even burning of the bricks. Each grate door-way is a cast-iron frame, *e*, provided with a door, *d*, of iron.

Heretofore, in making a brick-kiln, it has been customary to have the top covered with burnt bricks, the sides only being so made and plastered; but I cover the top or mass of bricks to be burned with burnt bricks fitted edge to edge and plastered with clay across their tops and joints, excepting when I leave vent-holes in such top, as described. By having such vent-holes provided with covering-plates or bricks, the escape of the heat, smoke, and gases may be regulated or determined as occasion may require.

Therefore, while I make no claim to a kiln provided with burnt or plastered bricks, arranged on its sides only,

I claim—

1. A brick-kiln, as constructed with its bricks to be burned laid with smoke-passages between them and about each brick, in the usual manner, and with burnt-brick facings on its sides and top, covered externally with a plastering of clay, and also with educts, as set forth, in the top, and with one or more furnaces, as described and shown, all being substantially as set forth and represented.

2. The grate to each furnace, for advantage and convenience being as explained, by preference, though not necessarily, composed of a series of plates perforated with holes, and provided with edge-notches and supporting-ribs, all being substantially as described and shown.

Witnesses: ROBERT A. SMITH.

R. H. EDDY,  
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