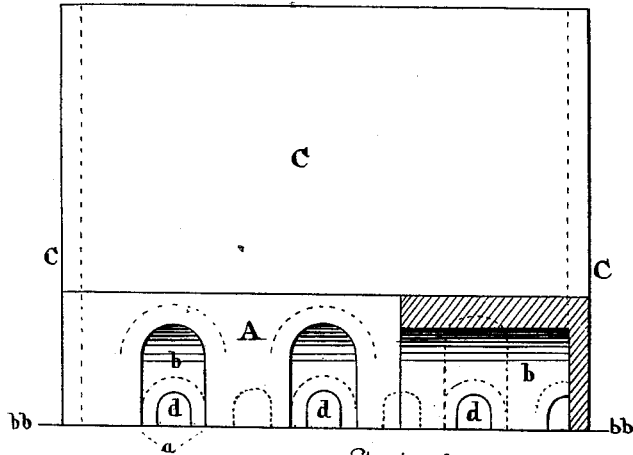


R. G. McCULLOUGH.  
 Tile or Brick Kiln.

No. 200,743.

Patented Feb. 26, 1878.



(Scale,  $\frac{1}{4}$  in. to foot.)

Fig. 1. (Elevation,  $\frac{1}{4}$  in. to foot.)  
 (Vert. Sec. on line dd fig. 2.)

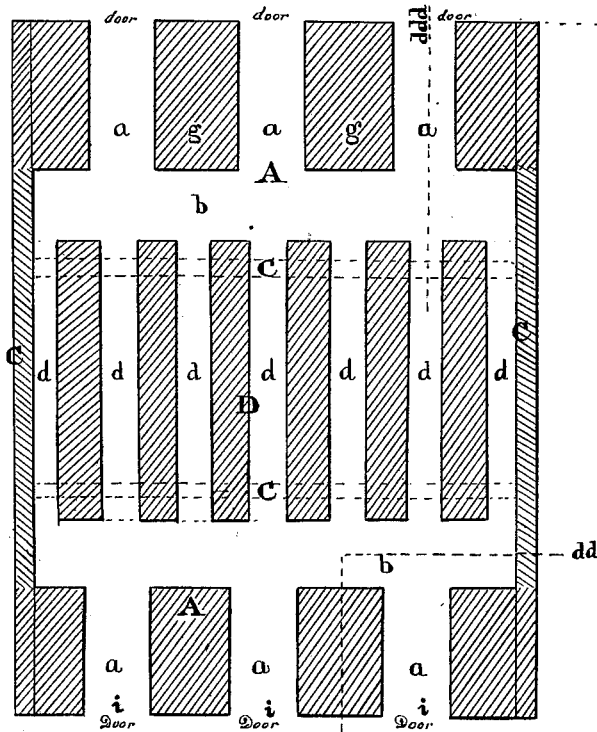


Fig. 2. (ground plan).

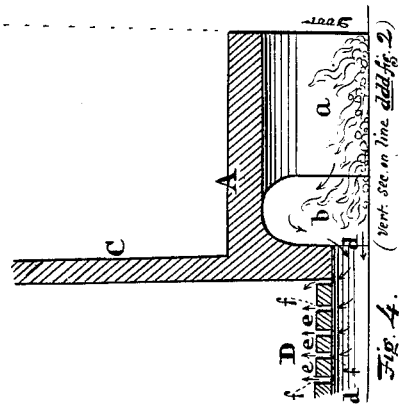


Fig. 4. (Vert. sec. on line dd fig. 2.)

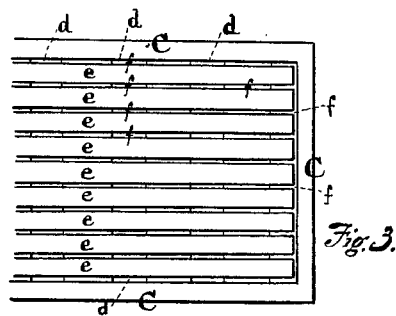


Fig. 3.

Witnesses  
 Luther Shurlow  
 John Arhine

Robert G. McCullough  
 by E. Shurtz at his special request

# UNITED STATES PATENT OFFICE.

ROBERT G. McCULLOUGH, OF SOMERVILLE, ILLINOIS.

## IMPROVEMENT IN TILE OR BRICK KILNS.

Specification forming part of Letters Patent No. 200,743, dated February 26, 1878; application filed December 21, 1877.

*To all whom it may concern:*

Be it known that I, ROBERT G. McCULLOUGH, of Somerville, in the county of Peoria, in the State of Illinois, have invented an Improvement in Tile or Brick Kilns; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a front elevation, with partial section of flanking-arch *b*; Fig. 2, a ground plan of the kiln; Fig. 3, a superficial view or plan of the tile-platform on which the latter are burned; Fig. 4, a longitudinal section of one of the outer furnace-arches, and of flanking-arch, and of small arch under body of kiln.

This is an improvement in that class of brick or tile kilns which are constructed with flanking extra-mural furnaces opening into long arches flanking either side of the kiln, said long arches connected by cross kiln-arches beneath the kiln floor or table; and consists in the construction of the floor of the kiln with rows of brick crossing said small kiln-arches, but leaving between the rows a continuous vertical chink or small flue opening up from or cutting the crown of each arch for an up-draft kiln; in connection with above-mentioned flanking arches and furnaces, or with a modified arrangement of the latter, viz., the kiln-arches are arranged alternately opposite a furnace and opposite a pier between the furnaces.

I proceed now with a general description: I make the flanking arches for combustion or heat passages for a medium-sized kiln from two to three feet in height and about two feet wide, with a similar height and width for the furnace-arches, with a distance between the furnaces of about two feet six inches. The smaller arches, for a proportional size with these, I make about one foot three inches apart and about one foot in height and width. These are built up to a uniform height, the filling being of common brick, if preferred, leaving passages upward through the crowns of the arches at small intervals in the manner I am about to describe, viz: On these arches

are placed a layer of fire-brick, in rows of about eight inches in width and about two inches distant from each other, running across the arches from wall to wall of the kiln, each opening or channel, where it crosses the respective arches, having a passage into the arch to allow fire and heat to ascend to the tiles which are placed upon said platform, thus constructed, to be burned.

One of the forms in which I construct my invention is as follows: In the drawings, A is the outwork, consisting of a long arch, *b*, flanking the kiln on either side of latter, and lateral furnace-arches *a*, extending thence outward at a right angle, and each of about the same height as that of the arch *b*. *i* are the doors, C the kiln-walls, and D the base-arches and table, of kiln; *d*, the smaller or kiln-arches proper, connecting the flanking-arches on either side of the kiln. These arches *d* open alternately opposite one of the furnace-arches *a* and their piers *g*.

*f* represents the series of parallel horizontal channels or cross-flues immediately over the arches *d*, between the tabular divisions *e e*, &c., each flue *f* cutting the crown of the respective arches across the kiln, or otherwise opening down into each arch *d*. These flues may be about two inches wide each, and the tables *e* between them may be formed by setting fire-brick close together in rows about eight inches in width and about four inches in depth to the top of the arches *d*, the whole forming a level platform to receive the tiles for the burning. These are set in the usual manner, edgewise on said table, the next tier being reversed or crossed, &c.

This kiln is adapted equally well for the burning of earthenware or brick, with a saving of at least one-fourth the quantity of fuel usually consumed in the ordinary mode of burning tiles or brick, with the additional advantage of almost perfect dissemination of the heat between the center of the kiln and its walls.

What I claim as my invention is—

1. The combination of the base kiln-arches *d* with their table *e*, with main arch *b* and furnace-arches *a*, as arranged and substantially as described.
2. The combination of the cross-flues *f* and

base-arches *d* with the flanking-arches *b b*, as constructed, with furnace-arches *a*, substantially as and for the purposes described.

3. The combination and arrangement of extra-mural lateral arches *b b* with furnaces *a a*, kiln-floor flues *d*, and floor *D*, substantially as described.

4. The combination and arrangement of the table *D*, flues *d* and *f*, as an up-draft kiln.

5. The arrangement of the lines of bricks *e*, separated by parallel flues or chinks *f*, the lat-

ter opening into each arch, successively crossed by same below, as described.

In testimony that I claim the foregoing improvement in tile or brick kilns I have hereunto set my hand this 13th day of December, A. D. 1877.

ROBERT G. McCULLOUGH.

Witnesses:

JAMES M. MORSE,

H. W. WELLS.