(No Model.) 2 Sheets—Sheet 1.

R. W. STEWART.

TILE OR BRICK KILN.

No. 427,201. Patented May 6, 1890.

Fig. 1.

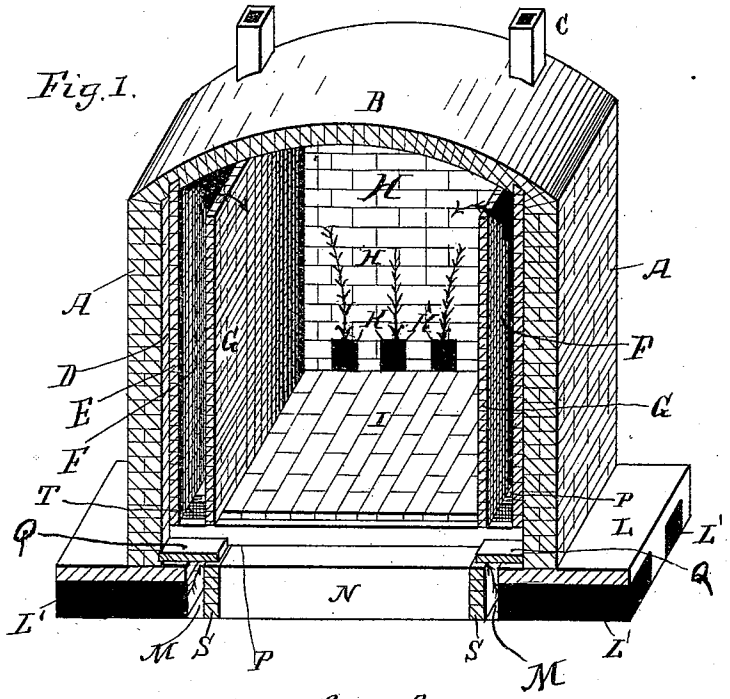

Fig. 2.

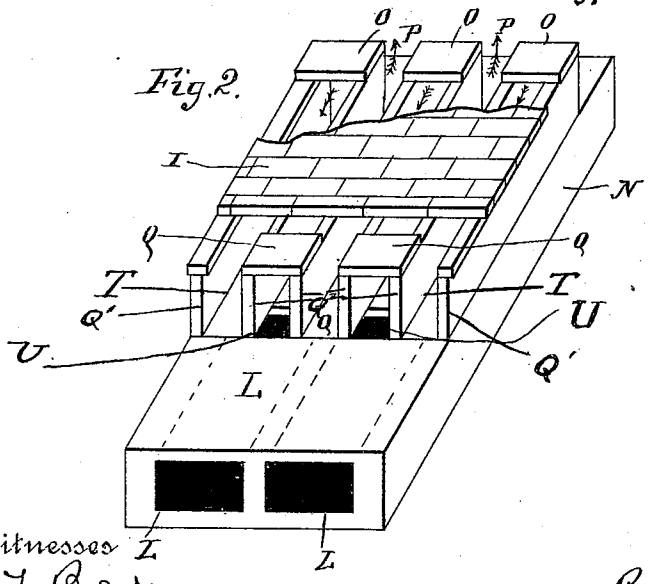

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Fig. 4.

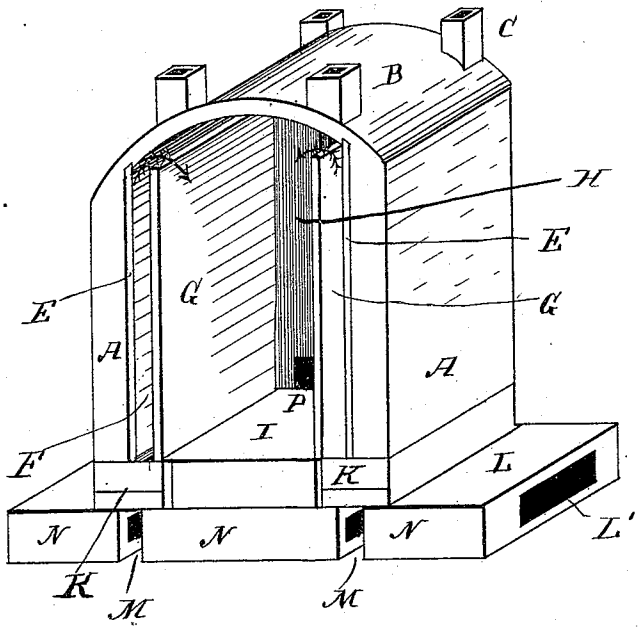
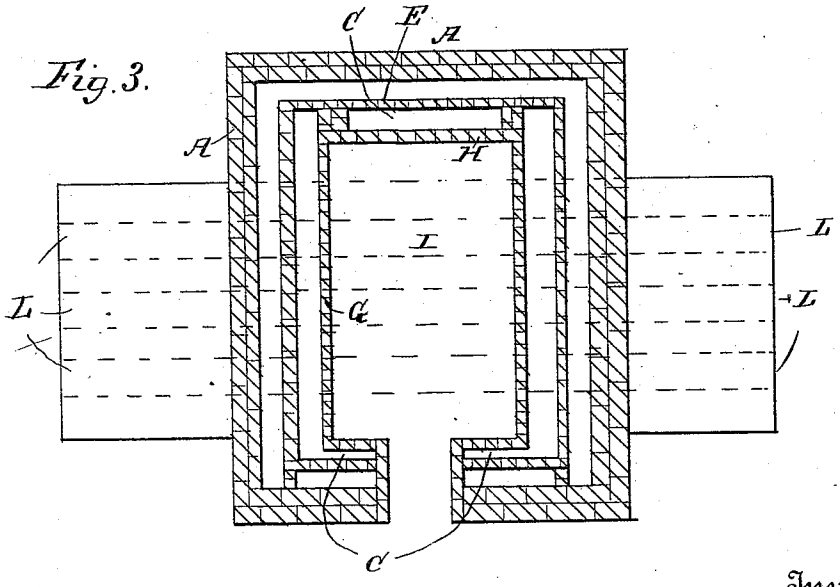


Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT W. STEWART, OF MOUNT VICTORY, OHIO.

TILE OR BRICK KILN.

SPECIFICATION forming part of Letters Patent No. 427,201, dated May 6, 1890.

Application filed June 1, 1888. Serial No. 275,777. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. STEWART, a citizen of the United States, and a resident of Mount Victory, in the county of Hardin and State of Ohio, have invented a new and useful Improvement in Tile-Kilns, of which the following is a specification.

My invention relates to improvements in tile-kilns.

Figure 1 is a front perspective view with the front wall cut away to show the interior arrangement, and showing the construction of the chimneys and flues; Fig. 2, a top perspective view of the flues underneath the floor, showing flues and part of floor and the furnace with the walls left off; Fig. 3, a top sectional view showing the arrangement of the furnaces, side walls, and fire-brick floor; Fig. 4, a front perspective with front wall cut away.

A is the outside wall; B, the crown; D, cold-air space; E, inner wall; F, space or chimney, up which the heat passes nearly to the top of the kiln; G, division-wall or partition built nearly but not quite up to the roof or crown; H, inner end wall; I, floor of fire-brick; K, exit for heat and smoke into the chimneys; L, furnaces; M, cross-passage, into which the heat passes from the furnaces on its way to the floor I; N, packing of earth; Q′ Q^2, fire-brick arranged in series over the passages M; P T, flues running across under the floor I; S, brick around the earth filling; U, opening from the passages M up into the flues P T; O Q, fire-brick plates placed over the alternate ends of each series of flues, as shown in Fig. 2; S, fire-brick wall around the packing of clay or earth N.

The construction and operation are as follows: I first build a rectangular wall S some twenty-six inches high, and inside it put a filling of earth or clay N, well tamped down. Around these walls I leave an eight-inch fire-space M, into which the furnaces L, built at two sides of the rectangle, open. The furnace-walls are built of fire-clay and covered with fire-tile some four inches thick. Across the top of the earth or clay tamping N, I build a series of horizontal flues P T, and on top of these, but not reaching to the end, I lay a fire-brick floor. Over the space M and resting on the wall S and on the wall of the furnace L, I build a series of boxes of fire-tile corresponding to the number of flues and opening into the flues P T. These boxes are open and closed at the top and bottom alternately, as shown in Fig. 2, at each end, the ones T being closed at the bottom on one end and the ones P being arranged in a corresponding manner, thus: the first or left-hand one, say, is closed at the bottom in the front of the drawing, so that the fire from the furnace L and passage M cannot enter it, while the flue next to it P shows a passage U from the passage M to admit the fire from the furnace into and through the flue, each alternate flue being open and closed at the bottom, as shown, while at the other end of the flues the order is reversed, the first flue T being open at the top and closed at the bottom. By this arrangement it will be readily seen that the fire from the furnaces L will pass into passage M and up through openings U into and through the flues P, underneath the floor I and out at the top of the other end of the flue, while the fire from the furnaces L′ will pass in at the bottom of flue T, through it, and out at its top at the other extremity. On top of these boxes I build two sets of walls E and G, extending around the four sides. The outer walls E extend up and intersect the dome or crown of the kiln, while the inner ones do not reach clear to the top. Outside of both of these walls and separated from them is the main wall A of the kiln. The top openings O from the flues open into the space between the walls E and G, but not into the space between A and E, which is only a cold-air space. It will now be seen that when the fire is kindled—say in furnace L—the heat will pass into the passage M, up through the openings U, along the flues P, and up out of the other end into the space F and up over wall G into the interior of the kiln, where the tile are packed for burning, and down through these and through the exits K into the space between the end walls G and E, and out through the chimneys C. The fire kindled in furnaces L′ will enter passage M, and thence through openings in the bottoms of the boxes into passages O, passing through them and out at the farther end into space F between the walls E G, up over wall G, down through the fire-chamber, and out the exits K at the bottom in a manner similar to the above. By

this arrangement it will be seen that the fire from each furnace crosses underneath the floor of the tile-chamber, up through the flues F F at the side of the chamber, and down through the tile-room proper, thus making a complete circuit of fire around the tile, so as to burn bottom, top, sides, and corners alike.

What I claim is—

In a tile-kiln, the combination, with the burning-chamber having a thin smooth floor and provided with entrances for the heat at the top, on both sides, and exits at the bottom at both ends, of the furnaces L, passages M M′, and the flues P T beneath the floor alternately opening into the flues F F, as and for the purpose set forth.

ROBERT W. STEWART.

Witnesses:

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M. E. CAMPBELL.