

PLATE 1.

SCALE
0 5 10 20 30 40 50
FEET

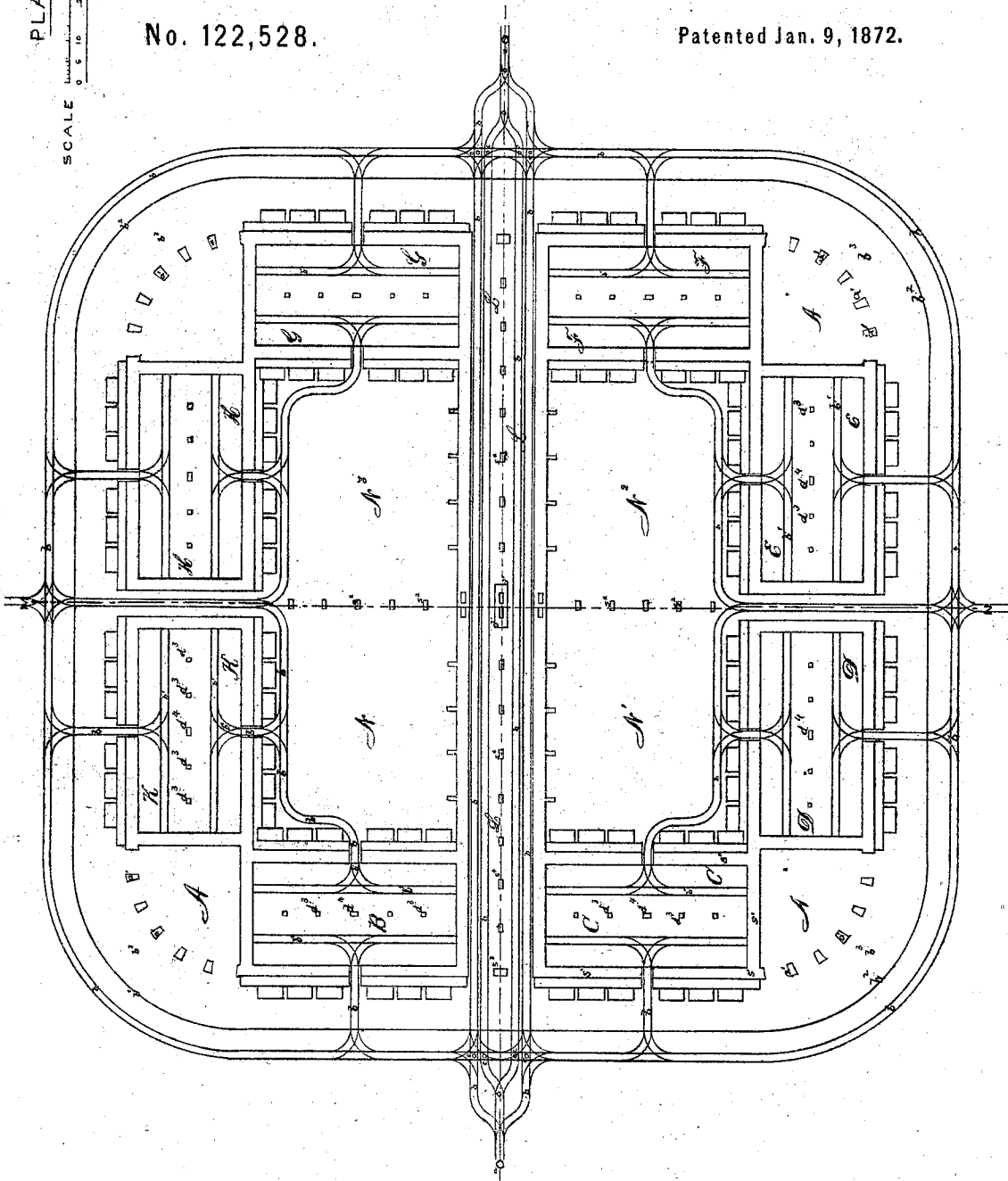
5 Sheets--Sheet 1.

T. LINDSLEY.

Improvement in Brick Kilns.

No. 122,528.

Patented Jan. 9, 1872.

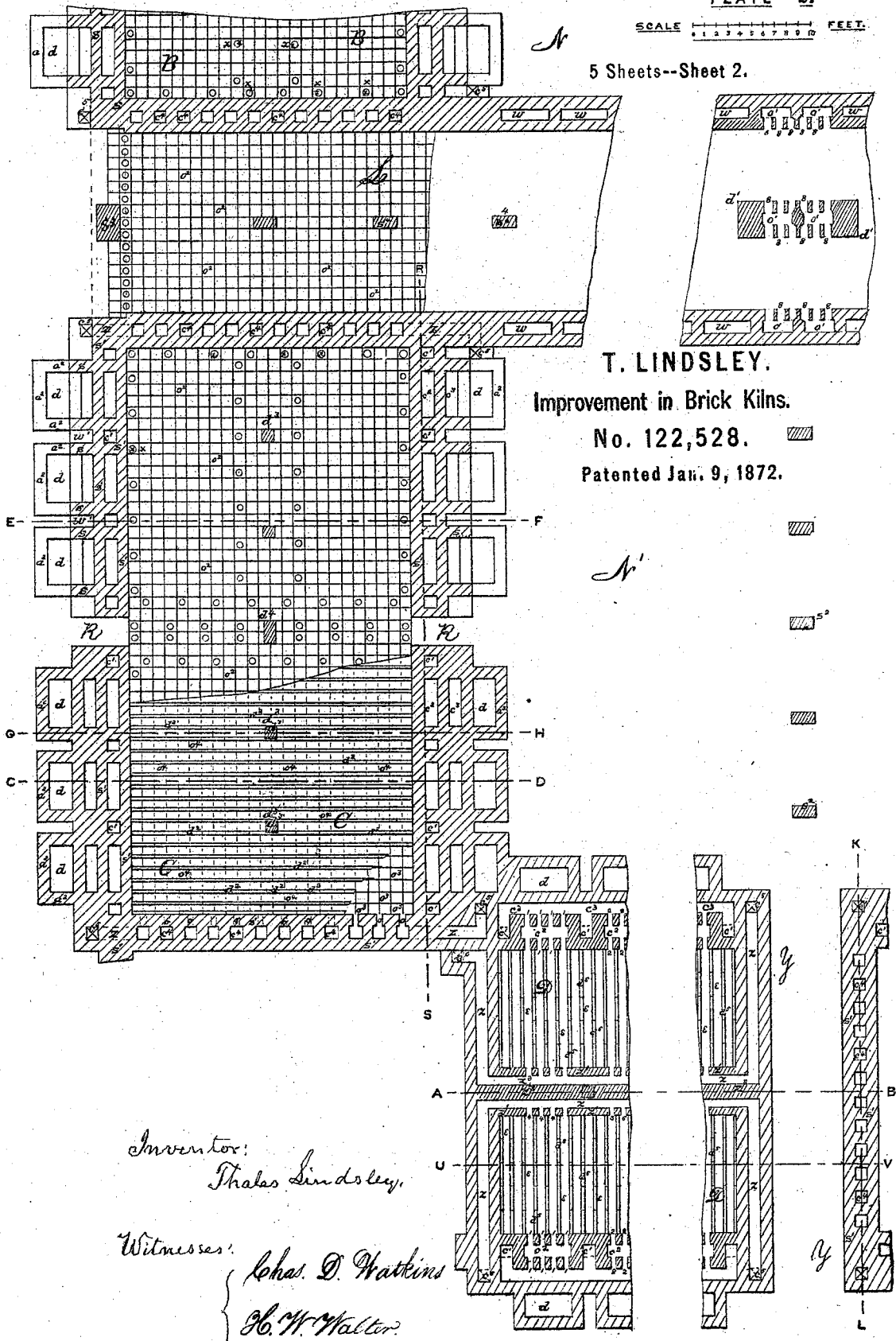


Witnesses:

{ Chas. D. Watkins
H. W. Walter

Inventor:

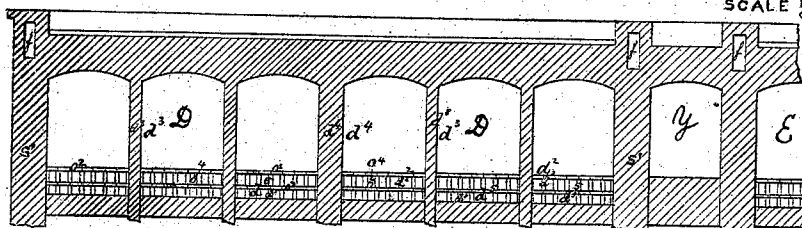
Thales Lindsley.



Inventor:
Thos. Lindsley.

Witnesses:
Chas. D. Watkins
H. W. Walter

SCALE 0 2 4 6 8 10 12 14 16 18 20 FEET



SECTION ON LINE A.B.

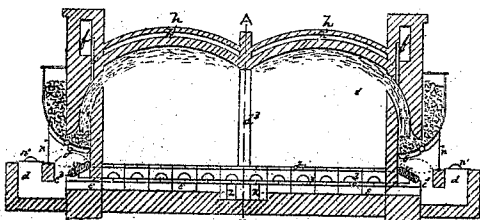
T. LINDSLEY.

No. 122,528.

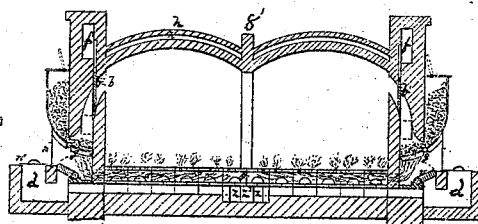
Improvement in Brick Kilns.

Patented Jan. 9, 1872.

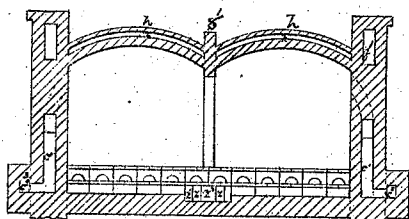
Inventor: Thomas Lindsley



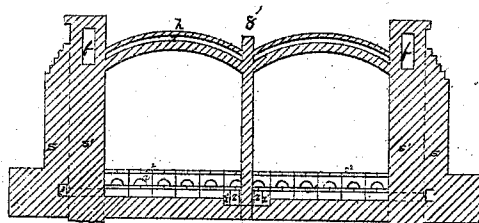
SECTION ON LINE C.D.



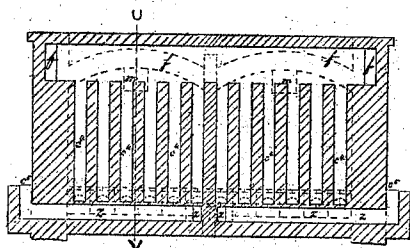
SECTION ON LINE C.D.



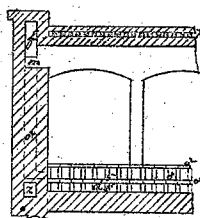
SECTION ON LINE E.F.



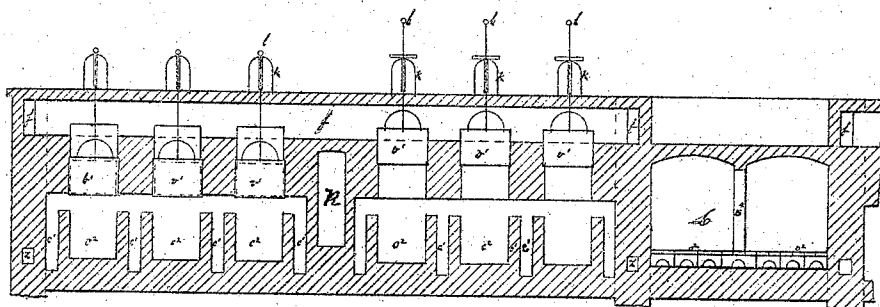
SECTION ON LINE G.H.



SECTION ON LINE K.L.



SECTION ON LINE U.V.



SECTION ON LINE R.S.

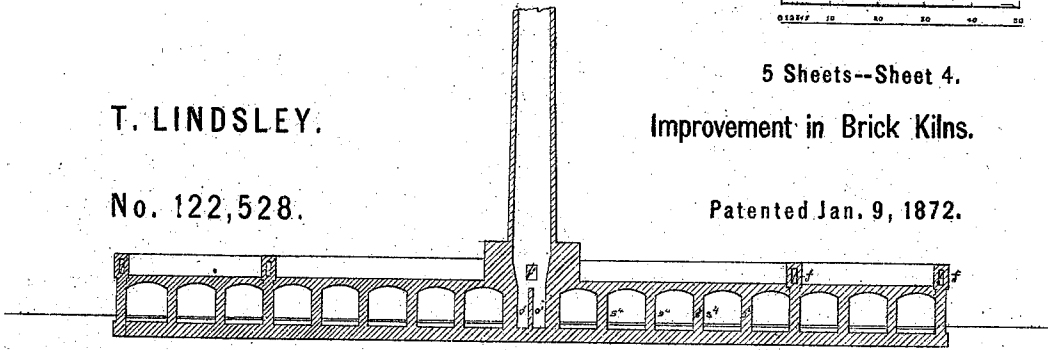
Witnesses: Chas D. Watkins, H. H. Watson

T. LINDSLEY.

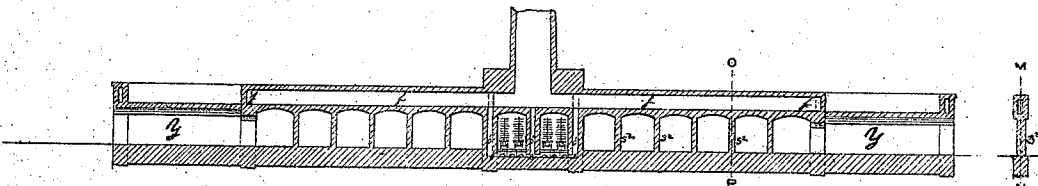
Improvement in Brick Kilns.

No. 122,528.

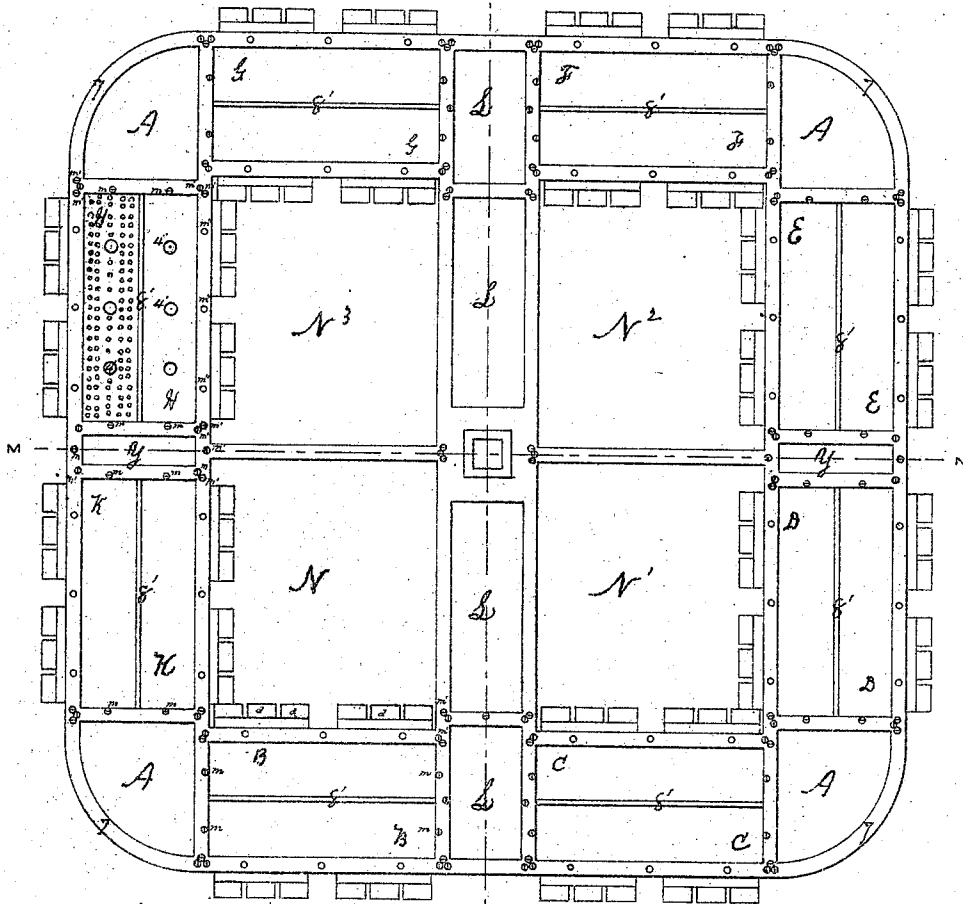
Patented Jan. 9, 1872.



LONGITUDINAL SECTION THROUGH DRYING CHAMBER



SECTION ON LINE M.N.



TOP VIEW OF KILN

Witnesses: Chas. D. Watkins
H. W. Walter

Inventor: Thales Lindsley.

T. LINDSLEY.

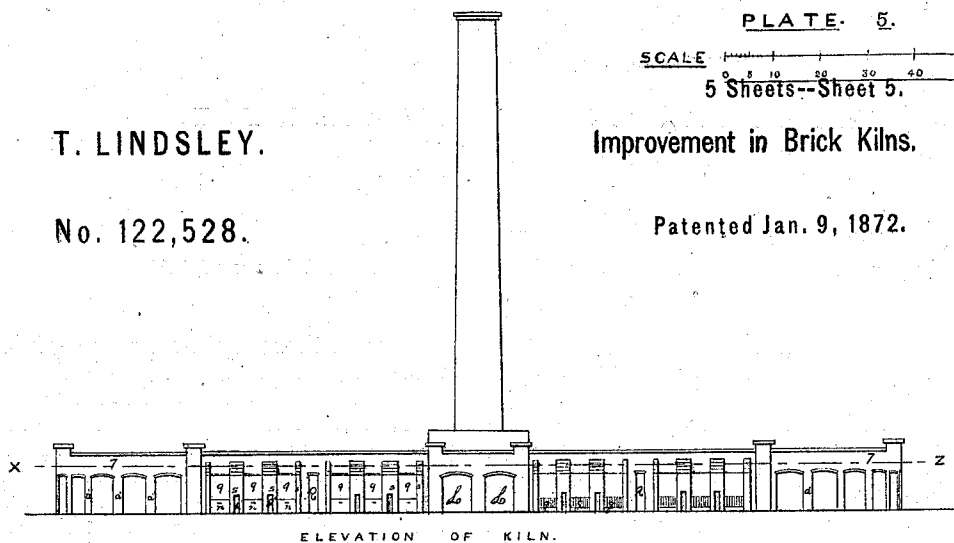
No. 122,528.

Improvement in Brick Kilns.

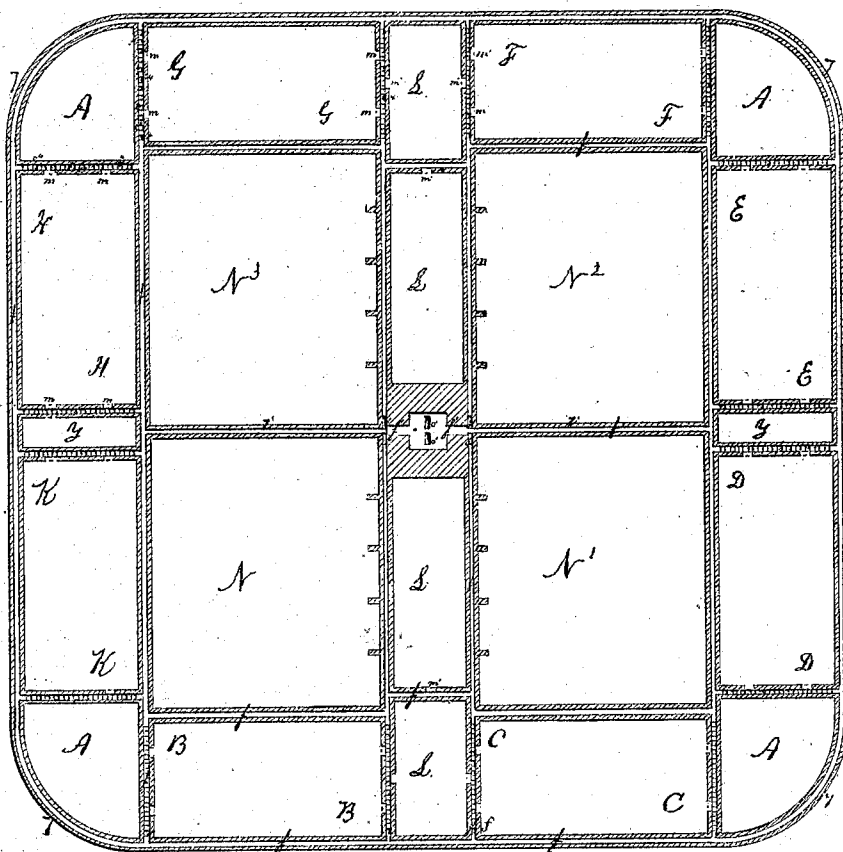
Patented Jan. 9, 1872.

PLATE 5.

SCALE 0 10 20 30 40 50 FEET
5 Sheets--Sheet 5.



ELEVATION OF KILN.



SECTION THROUGH MAIN FLUES
ON LINE X-Z.

Witnesses

Chas. D. Watkins

H. W. Waller

Inventor:

Thos. Lindsley

UNITED STATES PATENT OFFICE.

THALES LINDSLEY, OF NEW YORK, N. Y.

IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. 122,528, dated January 9, 1872.

SPECIFICATION.

Be it known that I, THALES LINDSLEY, of city, county, and State of New York, have invented a new and Improved Brick-Kiln for Burning, Water-Smoking, and Cooling Bricks, Tiles, &c.; and I declare the following to be a full, clear, and complete description of same, such as will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of these specifications.

My invention relates to the relative positions of the burning-chambers, as regards the drying-chamber and smoke-stack; to the peculiar arrangement of the flues; and to certain specific improvements herein specified and claimed.

My invention has for its objects: First, to burn bricks on an extensive scale, and to make the operations of the works continuous. We employ, therefore, eight chambers for burning, arranged with two chambers on each of the sides of a rectangle, which forms the area inclosed by the chambers, using one common drying-chamber, which traverses the area, in sheet I showing a plan of the structure. B, C, D, E, F, G, H, and K are the burning-chambers; L, the drying-chamber; and N¹ N² N³ N⁴, the area inclosed by the sides.

Second, to admit of increasing or diminishing the amount of heat, and at the same time to economize fuel. This is effected by furnishing each chamber with twelve furnaces, which are independent in their action, but cast their products of combustion all into the same chamber. We fire more or less of these furnaces, as a greater or less intensity of heat is required. In Sheet I *d d* show the ash-pits, and *c² c²* the fire-flues of the furnaces, which will designate the relative positions of these furnaces. *c³* are the horizontal flues which connect the furnace-flues, and by which their action may be made concerted, if desired, or rendered independent by means of dampers in this flue.

Third, confining the vertical hot-air flues to the ends of the chambers, in order that the sides may contain more furnaces and furnace-flues, and to insure more uniformity in the diffusion of the products of combustion in remote parts of the chambers.

Fourth, so arranging the cold-air flues that in passing between the upper and lower floors

of a burning-chamber they become highly heated, and the air, then hot, acts as a hot-blast as it passes through the grates of the furnaces. Of these cold-air flues there are two independent systems for each chamber; one having its openings on the outside of the structure, and the other having its openings on the area side and in the angles formed at the four corners. Should one of these systems be inoperative through any cause the other can be used, or both simultaneously. In D D of Sheet I these cold-air flues and openings are represented by *z z'*, *c⁵ c⁶*, &c., and *e e e* show how they traverse the hot space between the floors. *c⁴* are the vertical hot-air flues, shown in elevation in the other drawing.

Fifth, making the roofs of each chamber, as well as that of the drying-chamber, of two longitudinal arches, which unite along the middle of the chamber at their springing lines, and rest along this line on a wall, which is supported by piers with arches sprung between them, shown in cross-section in D D of Sheet I, at *d³* and *d⁴*, and the wall at *z³*, and by similar letters is shown in elevation in the other drawing. The object is double. It furnishes a double reverberatory furnace, reflecting and radiating the heat more uniformly than would be possible in a large furnace or chamber with a single arch or dome. It also leaves a space above this middle line of the chamber in the salient formed by the two arches for a large horizontal flue, into which openings are made into the chamber, and with which the vertical hot-air flues *c⁴* all connect, by means of transverse horizontal flues. This large flue, passing through the roofs of the adjacent chambers, discharges heat into the descending flues at the ends of the drying-chambers L L, between the upper and lower floors, and finally through the chimney-flues into the chimney; or may carry the heat directly through the similar flue, which is similarly situated in the roof of the drying-chamber, to the chimney-flues. To facilitate this connection with the drying-chamber and chimney a similar horizontal flue is supported on pillars *s² s² s²*, &c., across the area, at right angles to the drying-chamber, and which connects at each end with this flue. I also connect the system of horizontal flues of each

chamber with those of the others by carrying a flue across the arched doorways, and across each end of the drying-chamber, and around the corners of the structure upon an open arched wall, which is curved in form, in order to form a substantial buttress to the sides of the burning-chambers next adjacent, the cycloidal fuel-bins, (of which the longitudinal vertical section on plane perpendicular to the front wall is a cycloid, and in continuation of the curve of the fire-grate bars,) as shown in the drawing in elevation. The sides of these fuel-bins are the walls of the hollow retaining buttresses, which buttresses are provided with openings at the bottom, in which to stow away the utensils of the fireman. In the drawing, showing the structure in elevation, *g* are the fuel-bins; *s*, the buttress; and *Q'*, the hollows left at the bottom of each.

In the middle division of the triple walls of which this structure is composed, and making a complete circuit of the whole structure over the furnaces on the exterior side, as well as on the interior or area side, are two horizontal flues, *f*, shown in the sectional drawing, for conducting the hot-air from the chambers to the drying-chamber, and thence to the chimney-flues. These have such connections in the chambers that should either one become disordered the other would carry all the products of combustion, &c.

The fire-flue dampers *v'* are provided with rods which pass up through a bell-cap on top of the structure, which sits into grooves filled with sand, which renders it close fitting, and the cap also furnishes support for the rod. The grate-bars are hinged on a line with the front of the outside wall, so they can be swung down and the flues cleaned readily. The draught may be changed, as represented, by the suitable interposition of dampers, &c., in the usual manner.

A more minute description need not be given, as the positions and action of the flues, being fully represented in the drawing, will be readily understood by any one skilled in the art to which it relates.

This kiln is provided with a system of railways, visiting each of the burning-chambers and drying-chamber from both front and rear.

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

1. A kiln with buttresses, burning-chambers, furnaces, flues, and drying-chamber, constructed and arranged in the particular manner and inclosing a rectangular court, substantially as set forth.

2. The cycloidal fuel-bins *g*, in combination with the hollow buttresses *s* and openings *Q'*, all substantially as represented.

3. The kiln-chamber, provided with double arched roofs, and several furnaces on each side, fuel-bins *g*, ash-pits *d* with covers, furnace-doors *u*, tumbler-valve *v*, hinged grate *g'*, connecting-flues *c'*, and flues *f* and *c''*, dampers *v'*, and bell-cap, all arranged substantially as set forth.

4. In a burning-chamber, the peculiar arrangement of the floors, in combination with the hot and cold-air flues, as represented.

5. The system of vertical and horizontal hot and cold air flues, constructed and arranged with respect to each other substantially as shown.

6. The vertical flues *c'* with the viaduct transverse and corner flues, constructed and arranged as set forth.

7. The arrangement, with the drying-chamber, of the chimney-stack, and connecting-flues, as described.

THALES LINDSLEY.

Witnesses:

GEO. B. WALTER,
GEORGE B. WALTER, Jr.

(20)