(No Model.) 2 Sheets—Sheet 1.

W. RADFORD.

BRICK KILN.

No. 348,413. Patented Aug. 31, 1886.

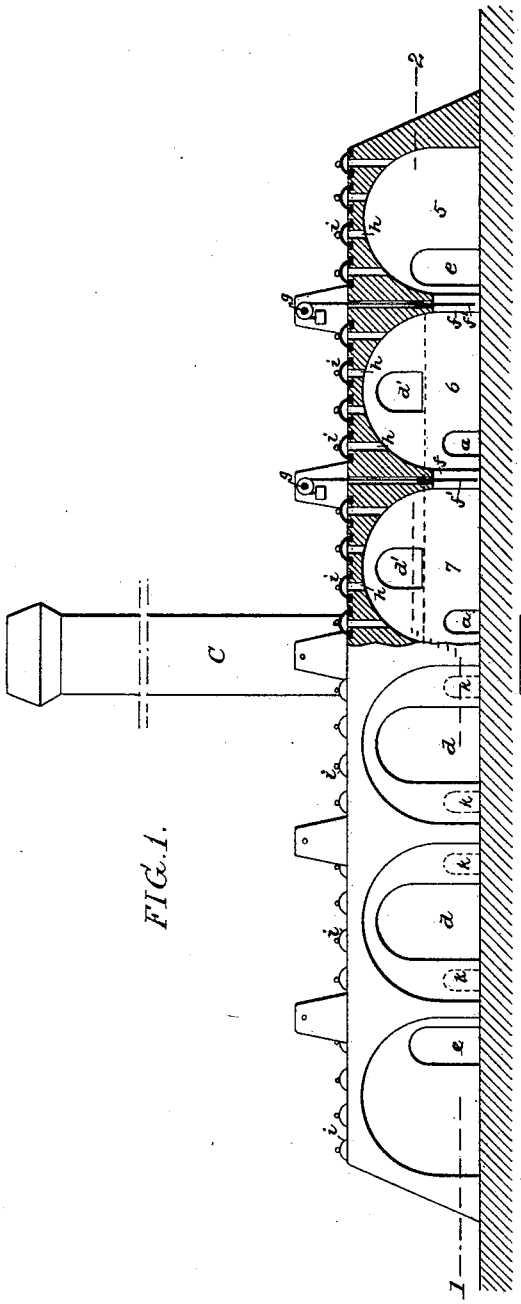

FIG. 1.

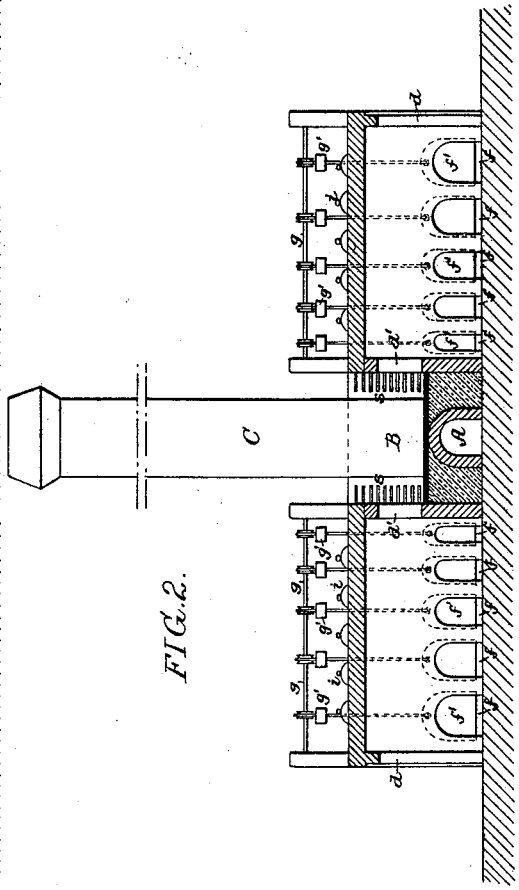

FIG. 2.

Witnesses:
John E Parker
William D. Conner

Inventor:
William Radford
by his Attorneys
Howson and Sons

(No Model.) 2 Sheets—Sheet 2.

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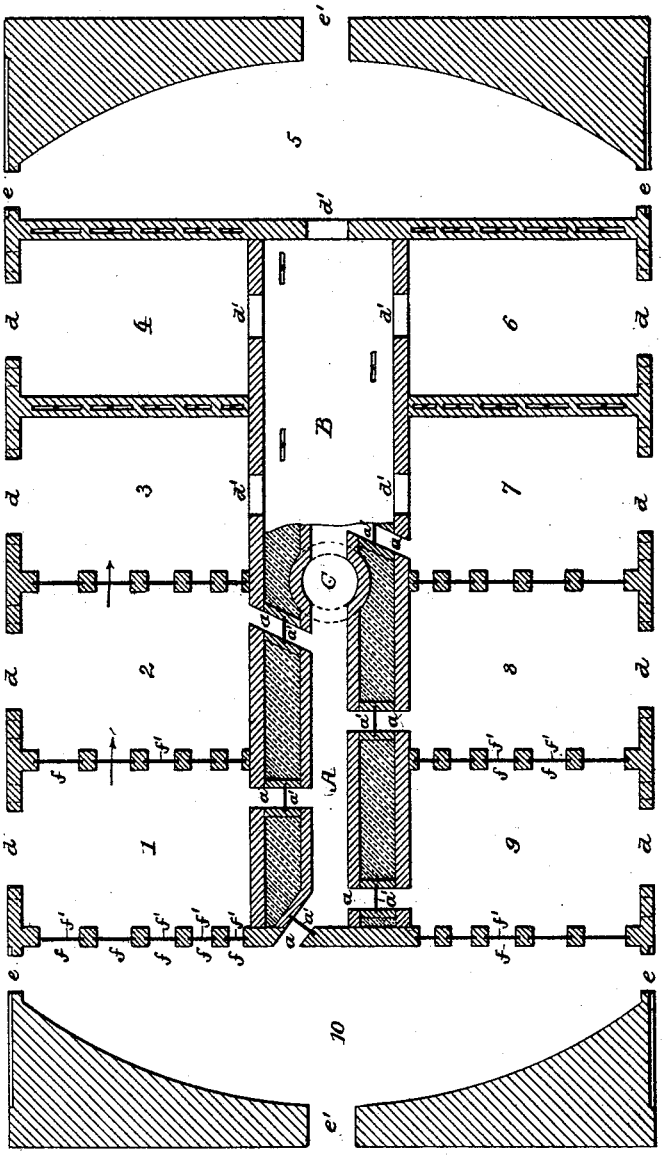

FIG. 3.

Witnesses.
John E. Parker
William D. Connin

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William Radford
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Howson and Sons

UNITED STATES PATENT OFFICE.

WILLIAM RADFORD, OF PHILADELPHIA, PENNSYLVANIA.

BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 348,413, dated August 31, 1886.

Application filed June 8, 1886. Serial No. 204,475. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RADFORD, a subject of the Queen of Great Britain, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Brick-Kilns, of which the following is a specification.

My invention consists of certain improvements in the detailed construction of that class of brick-kilns in which there are a number of adjoining chambers adapted to communicate with each other through suitable doors or openings, and also communicating with a common flue, as fully described hereinafter.

In the accompanying drawings, Figure 1 is an elevation of my improved brick-kiln, partly in section. Fig. 2 is a transverse section of the same; and Fig. 3 is a sectional plan view on the line 1 2, Fig. 1.

Numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 are brick-burning chambers, each of which communicates through a flue, *a*, with a common main flue, A, running longitudinally in a central space between the chambers and communicating at the center with the chimney C. Each of these connecting-flues *a* is adapted to be closed by a vertically-sliding damper, *a'*. Each of the side chambers is provided with an arched or other suitably-shaped doorway, *d*, at the outer side, and with a smaller doorway, *d'*, at the opposite end, of the chamber, the doorway *d'* opening from the central space, B, between said chambers over the common flue A.

The two end chambers, 5 and 10, have doorways *e* and *e'* in addition to the doorway *d'*, the doorway *e'* being in line with the central space, B, between the side chambers, so that direct access can be had to this space through any of the empty chambers 1 2 3, &c., by putting an inclined plank from the floor of the kiln to the level of the floor of the space or chamber B.

In the walls between adjoining chambers, 1 2 3, &c., there are a number—five in the present instance—of openings or archways, *f*, adapted to be closed by vertically-sliding dampers *f'*, controlled by wire ropes or chains passing up through the top of the kiln and over pulleys on transverse shafts *g*, the suspending chains or ropes being provided with suitable counter-weights, *g'*.

In the roof of each burning chamber there are a number of vertical openings, *h*, adapted to be closed by suitable caps, *i*, in any well-known manner, these openings being for the introduction of fuel, or of a glazing compound when the kiln is used for glazing purposes.

When this kiln is to be used as a continuous kiln, the green bricks are placed in the first three chambers—1 2 3, for instance—and the doors *d* and *d'* of these three chambers are bricked up in the usual way, the dampers *f*, between chambers 3 and 4, are closed, the damper *a'*, leading from the chamber 3 to the main flue, is opened, the dampers *a'*, from the chambers 1 and 2, are closed, and fires are built in the doorways *f*, leading from the end chamber, 10, to the chamber 1. There is then a direct shaft for the products of combustion through chambers 1, 2 and 3, to the main flue and chimney, and in the meantime, while this fire is in progress, the green bricks are introduced into chamber 4, and when the bricks in the first chamber have become sufficiently hot or burned, the dampers *f'*, between chambers 10 and 1, may be closed, and all further fuel introduced through the openings *h* in the tops of the chambers, and then the damper *a'*, leading from chamber 3 to the main flue, may be closed, and the dampers *f'*, between chambers 3 and 4, are opened, as also the damper *a'*, leading from chamber 4 to the main flue, so that there will be a draft of heat through the first four chambers to the flue A. In the meantime chamber 5 is introduced into the line of draft, and so on with the successive chambers, until, by the time chambers 9 and 10 are reached, the bricks in chambers 1 and 2 will have become sufficiently cooled for removal, after having been thoroughly baked.

The doorways *f*, between the adjoining chambers, are wider the farther away they are from the main flue A, so that any tendency of the draft of heat to creep around along the inside without getting along the outsides of adjoining chambers is counteracted, and consequently there will be a more uniform distribution of heat.

I utilize the space B between the brick-burning chambers on opposite sides and above the main flue A as a space for drying bricks, and for this purpose I prefer to arrange along

the side walls shelves *s*, as shown in Fig. 2, on which the bricks may be placed to dry.

In building bricks in the burning-chambers, it will be found advantageous to first introduce the bricks from the outside through the openings or doorways *d*, and then when the bricks reach the height of the top of the flue A the bricks may be introduced from the drying-space through the doorways *d'*.

Although the kiln described is more particularly adapted to be used as a continuous kiln, any one of the chambers may be used separately, the communicating dampers *f'*, between adjoining-chambers, being closed in this case, and under such circumstances openings or archways *k*, as indicated by dotted lines in Fig. 1, are formed on each side of the main doorway, as well as in the doorway itself, when the latter is partially bricked up after the bricks have been introduced into the chamber, so that fires may be built in these archways or openings, and the draft will be across the chamber and out through the connecting-flue *a* to the main flue A.

I claim as my invention—

1. The combination of the main flue A and connecting-flues *a* of a brick-kiln, with a series of adjoining burning-chambers having communicating openings between the chambers larger in size at the sides away from the flues, as and for the purpose set forth.

2. A brick-kiln having a series of burning-chambers, 1 2 3, &c., with a central longitudinal main flue between the rows of burning-chambers, and connecting-flues *a*, the said chambers having communicating openings *f*, smaller on the sides adjacent to the main flue than at the sides farther away therefrom, as and for the purpose described.

3. A brick-kiln having a series of adjacent burning-chambers with a central longitudinal space between them, provided with shelving for the drying of bricks.

4. A brick-kiln having a series of adjacent burning-chambers, and a central longitudinal flue, A, with which the chambers communicate, and a longitudinal chamber, B, over the said flue, the burning-chambers having doorways *d* at the outside and doorways *d'* opening into the central space, B, at the other side, as and for the purpose described.

5. A brick-kiln having a series of adjacent chambers and a central longitudinal flue, A, with which the chambers communicate, and over said longitudinal flue and between the chambers a central longitudinal space adapted for the drying of bricks, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM RADFORD.

Witnesses:
WILLIAM D. CONNER,
HUBERT HOWSON.