

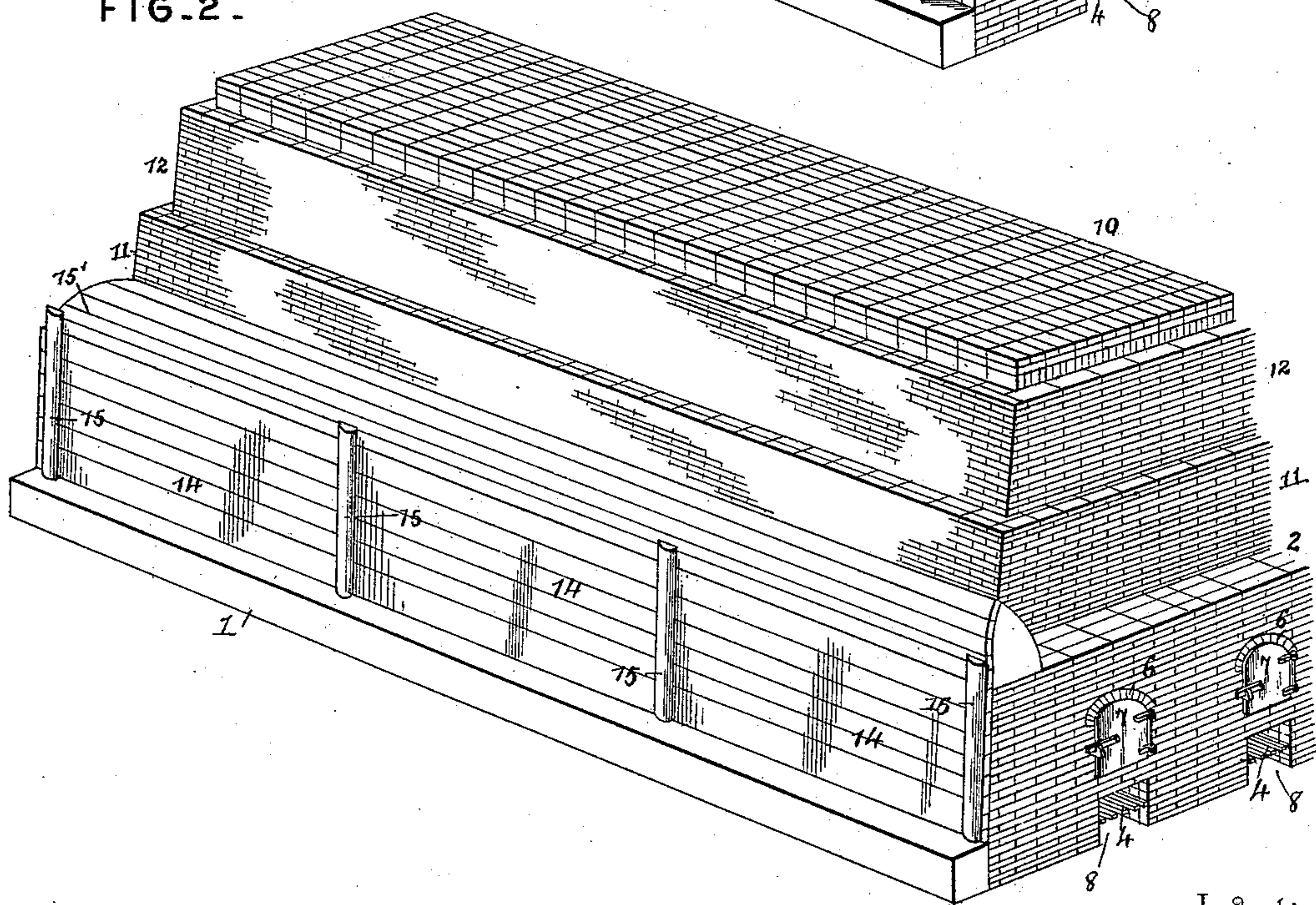
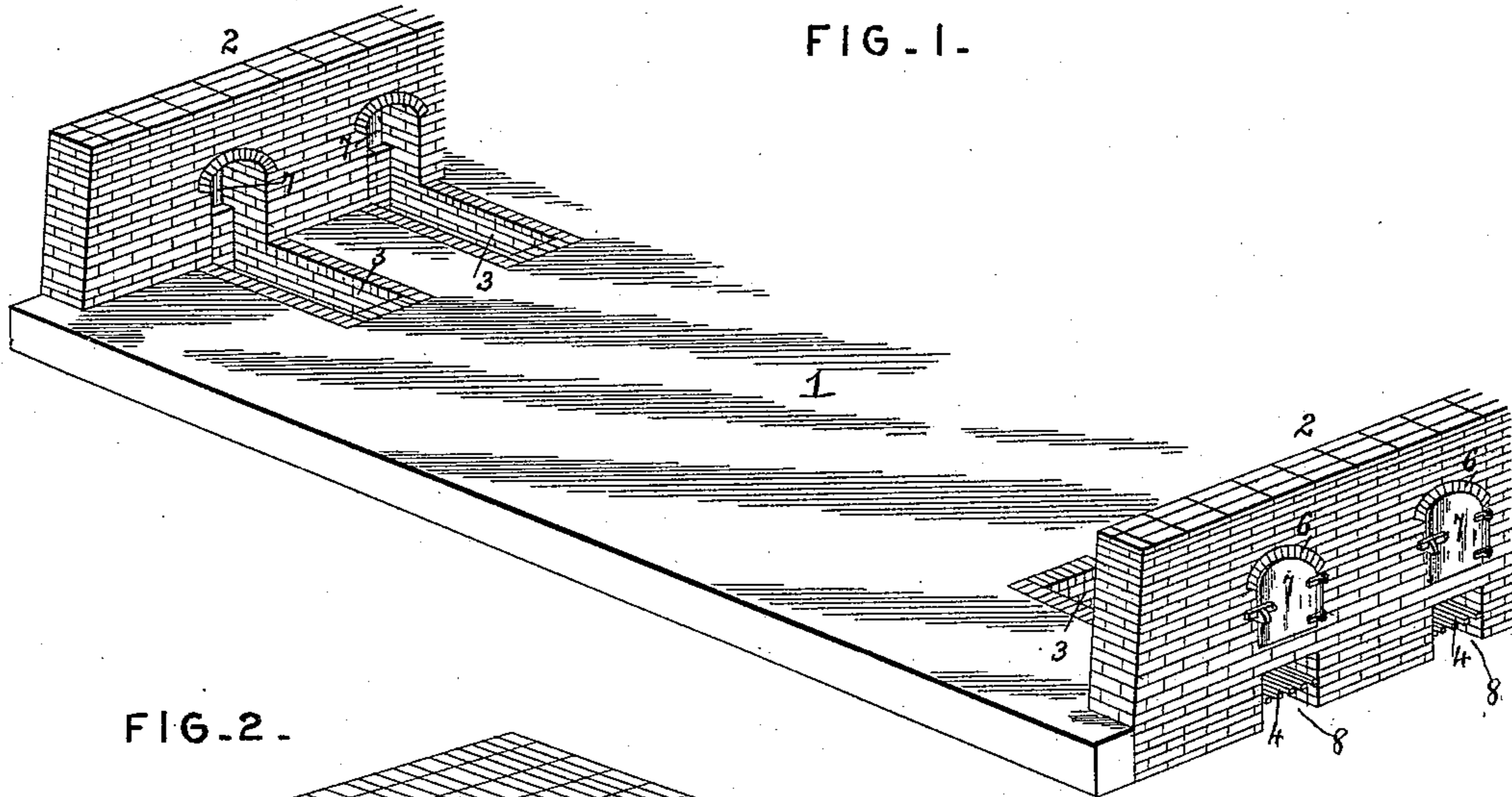
(No Model.)

3 Sheets—Sheet 1.

J. C. KINZEL.  
BRICK KILN.

No. 471,769.

Patented Mar. 29, 1892.



Witnesses

*Jas. H. McElathran*

*Wm. Baggers*

By his Attorneys,

*C. A. Snow & Co.*

Inventor

*J. C. Kinzel*

(No Model.)

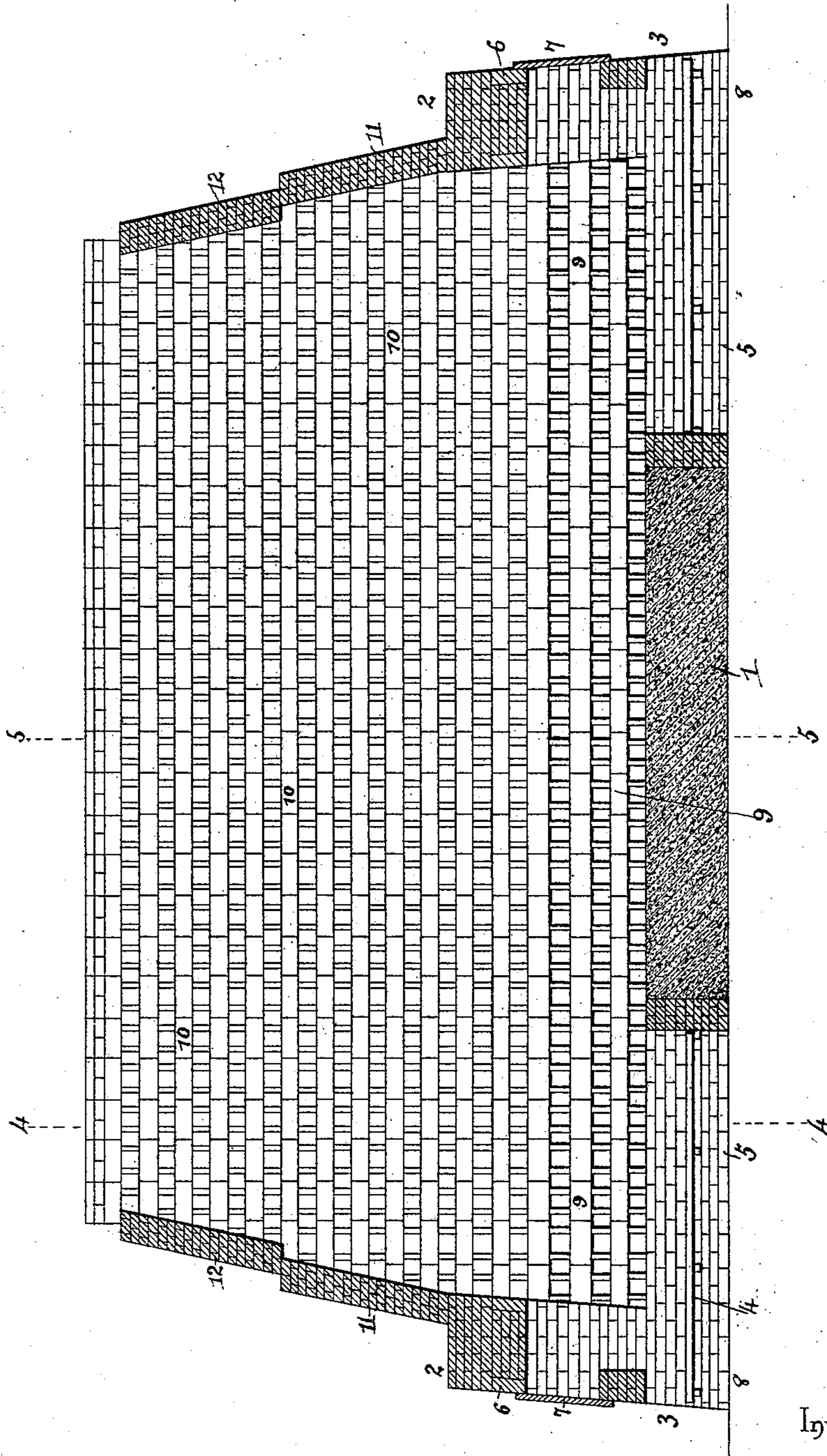
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FIG. 3—



Witnesses

*Jas. H. McLaughlin*

*Wm. Bagger*

By his Attorneys,

*J. C. Kinzel*

*C. A. Snow & Co.*

Inventor

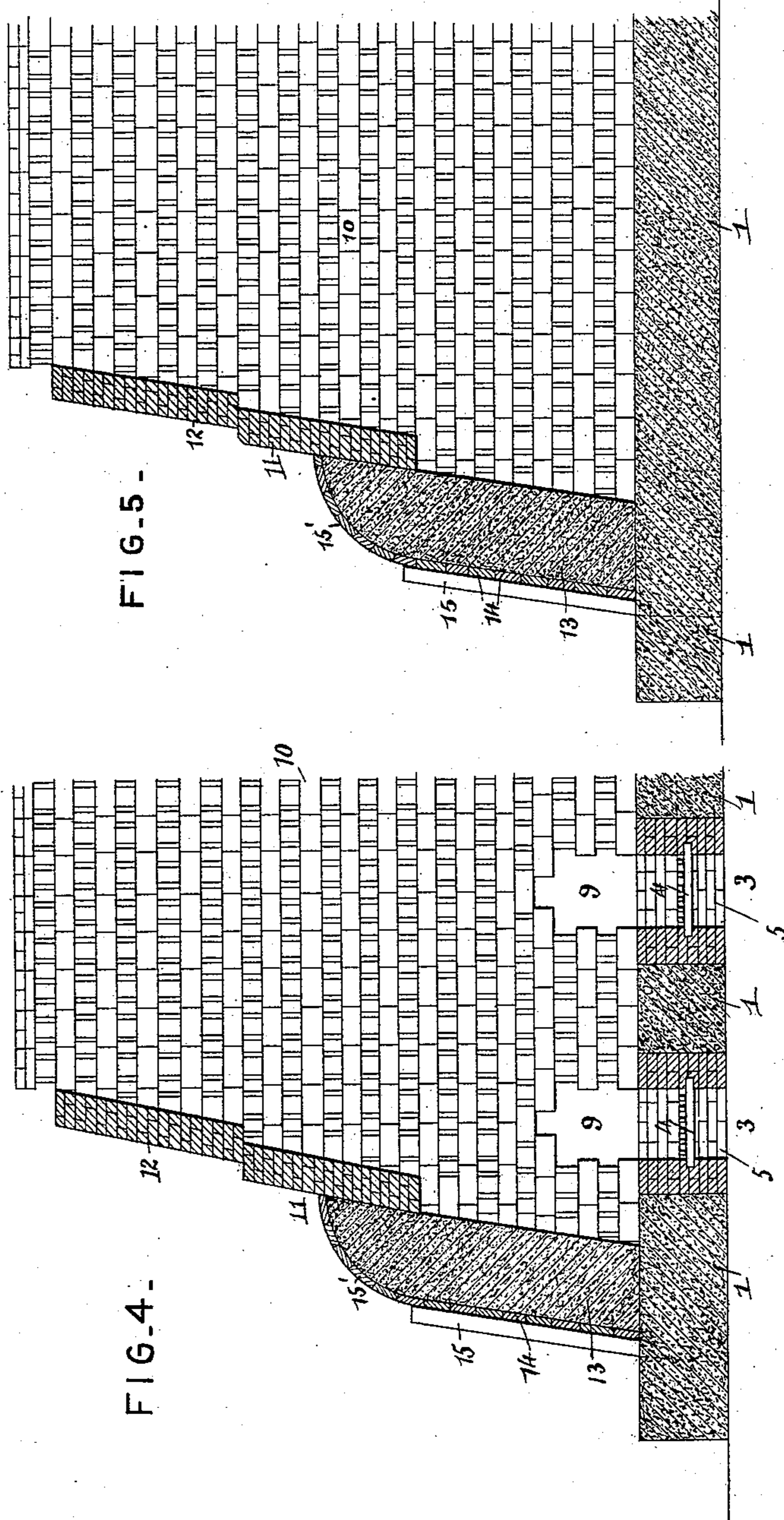
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# UNITED STATES PATENT OFFICE.

JOHN C. KINZEL, OF KNOXVILLE, TENNESSEE.

## BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 471,769, dated March 29, 1892.

Application filed April 15, 1891. Serial No. 389,035. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. KINZEL, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Brick-Kiln, of which the following is a specification.

This invention relates to brick-kilns; and it has for its object to construct a device of this class which shall be very simple and efficient in operation, in which the brick may be dried and afterward burned without the use of wood or coke, as is generally required for the preliminary drying process, and in which the said operations of drying and burning may be performed more rapidly than heretofore without detracting from the commercial value of the bricks produced.

With these ends in view the invention consists in the improved construction of the kiln and the method or process of using the same, which will be hereinafter fully described, and particularly pointed out in the claim.

In the drawings hereto annexed, Figure 1 is a perspective view showing one end of a kiln constructed in accordance with my invention prior to the piling of brick therein for burning. Fig. 2 is a perspective view showing one end of the kiln filled with brick and provided with the casing in readiness for burning. Fig. 3 is a vertical sectional view taken transversely through the end of the kiln. Fig. 4 is a vertical sectional view taken on the line 4 4 in Fig. 3. Fig. 5 is a vertical sectional view taken on the line 5 5 in Fig. 3.

Like numerals of reference indicate like parts in all the figures.

The body of my improved brick-kiln is composed, essentially, of the floor or base 1 and the side walls 2 2. The base, which is preferably raised above the level of the ground, may be constructed of dirt, suitably banked up, and having the furnaces 3 3, which are walled up with brick, as shown. In the furnaces are mounted the grate-bars 4, which are supported at least four courses of brick, or one foot, below the level of the floor. Below the grate-bars are the ash-pits 5, which may be of any desired depth, according to the height of the structure or embankment forming the base 1.

The side walls 2 2, which are built up of brick, are constructed along the sides of the base. Said side walls may be of any desired height, preferably six to seven feet and about two feet thick. The said side walls are constructed with the furnace-arches 6, having doors 7, through which the furnace may be fed. Openings 8 are also provided, through which access may be had to the ash-pits.

The furnaces extend inwardly from both sides toward the longitudinal center of the kiln, and they may be of any desired depth or length.

In arranging the brick in my improved kiln for burning it is built up between the side walls in the usual manner, tunnels or flues 9 being formed transversely in the kiln directly over the furnaces. The furnaces at the two sides of the kiln being arranged in a line with each other each of said tunnels or flues will serve to connect two of said furnaces, as will be apparent from the drawings hereto annexed. In piling the brick in the kiln the individual bricks are to be so arranged with relation to each other as to admit of the passage of the flame and products of combustion, as is usually the case. The brick having been piled within the kiln, as shown at 10, is surrounded by a casing consisting of a four-inch wall slanting toward the top and composed of two steps or terraces 11 and 12. The lower part of the casing 11 is made to rest upon the side walls 2, as shown in the drawings. The ends of the kiln are banked up with dirt, as shown at 13, and this is kept in place by means of planks 14 and braces 15, the end wall being provided with a cap 15', likewise constructed of planks.

When a kiln is built according to the foregoing description, it may be sweated or dried out with slack soft coal, which is much less expensive and requires less attention than either wood or coke. To do this I proceed as follows: After the fire is started it is banked up with enough slack coal to last from six to eight hours without stirring or raking the fires, or, in fact, without any attention whatever. This will keep a slow fire burning with very little smoke and will not choke the kiln. At the end of that time rebank the fire, and

so continue until the kiln is dried out. Care should be taken not to stir the fires, as this would cause smoke, and thus choke the kiln.

5 The construction of my improved kiln, as herein described, is simple and inexpensive, and it requires comparatively a very small amount of fuel. A kiln constructed in accordance with this invention may be burned in from seventy-five to eighty hours, while  
10 other kilns with which I am familiar require nearly twice that length of time. After the kiln is burned the ends of the kiln, which are built of plank and dirt, may be removed, thus giving ample space all around the kiln for  
15 removing the brick and loading it onto wagons, not only from the ends of the kiln but from the sides as well, the side walls being of such a height as not to interfere with the removal of the brick. The fires may be raked  
20 and the clinkers removed during burning without opening the furnace-doors, thus preventing cold air from entering and damaging the brick while in the kiln. This is owing to the arrangement of the grate-bars, say one  
25 foot below the floor-level of the kiln, as herein described, thus giving space for raking the fires without the necessity of opening the doors. If the grate-bars were placed on a level with the kiln-bed, the ashes, cinders, and  
30 clinkers would accumulate upon the grate-bars, to remove which by the ordinary means of dumping the grate or opening the furnace-

door would afford a passage for the cold air into the kiln, while by my improved construction this is avoided.

35 Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In a brick-kiln, the combination of the bed or base, the short independent side walls having front openings for the furnace-doors and ash-pits, parallel pairs of open furnaces extending inwardly from said front openings in the side walls and opening their entire length directly into the space inclosed by said walls  
40 and the body of the kiln, the casing composed of upwardly-sloping terraces supported upon said side walls, the end walls, composed of dirt, banked up and overlapping the lower edges of the ends of the supported terraces, and an  
45 inclosing covering and cap composed of closely-laid planking completely covering the outer faces of said end walls and curved over and capping the top of the same and meeting the faces of the overlapping terraces, substantially as set forth. 55

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN C. KINZEL.

Witnesses:

LEWIS HENLEY,  
CHARLES SLATER ADAMS.