

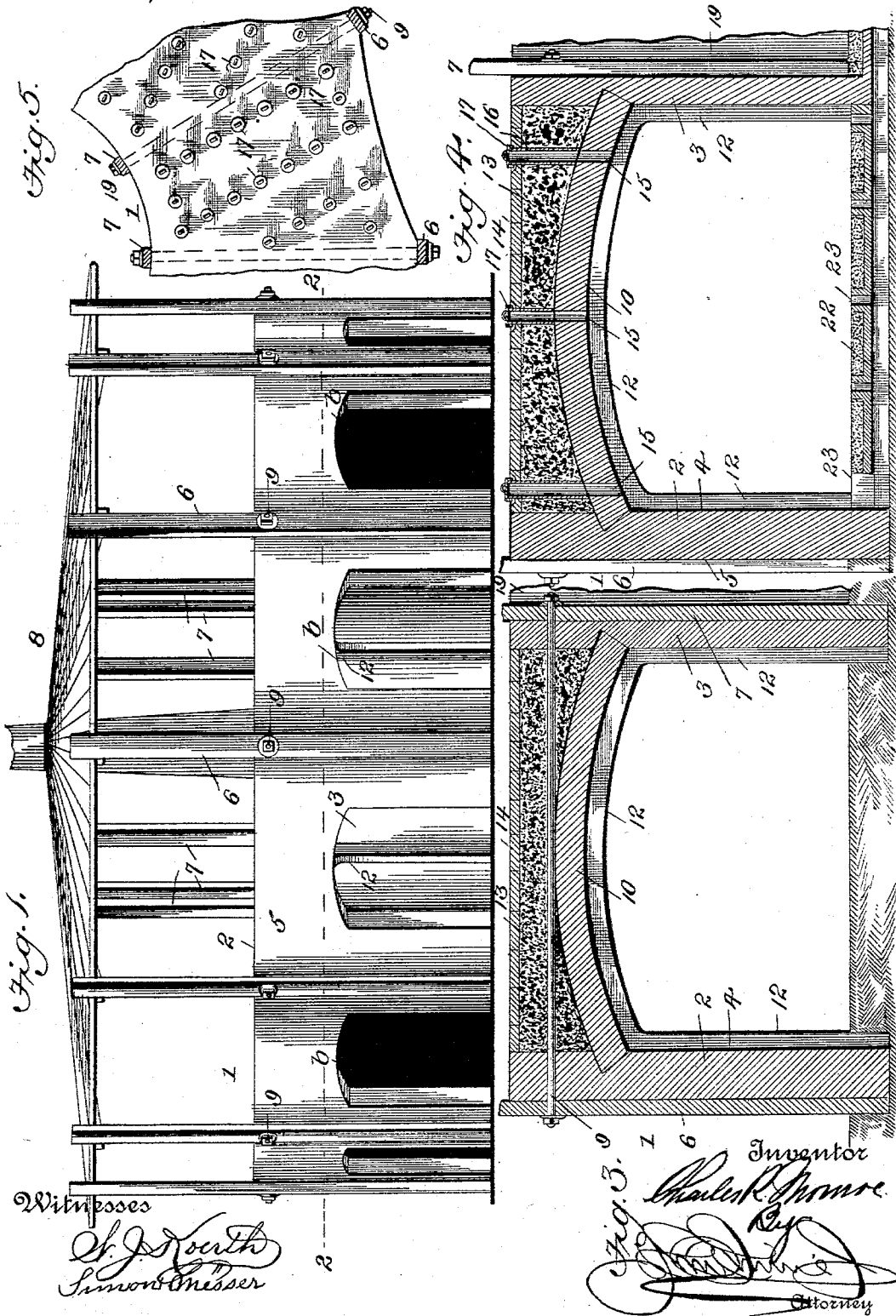
(No Model.)

2 Sheets—Sheet 1.

C. R. MONROE.
CONTINUOUS BRICK KILN.

No. 531,850.

Patented Jan. 1, 1895.



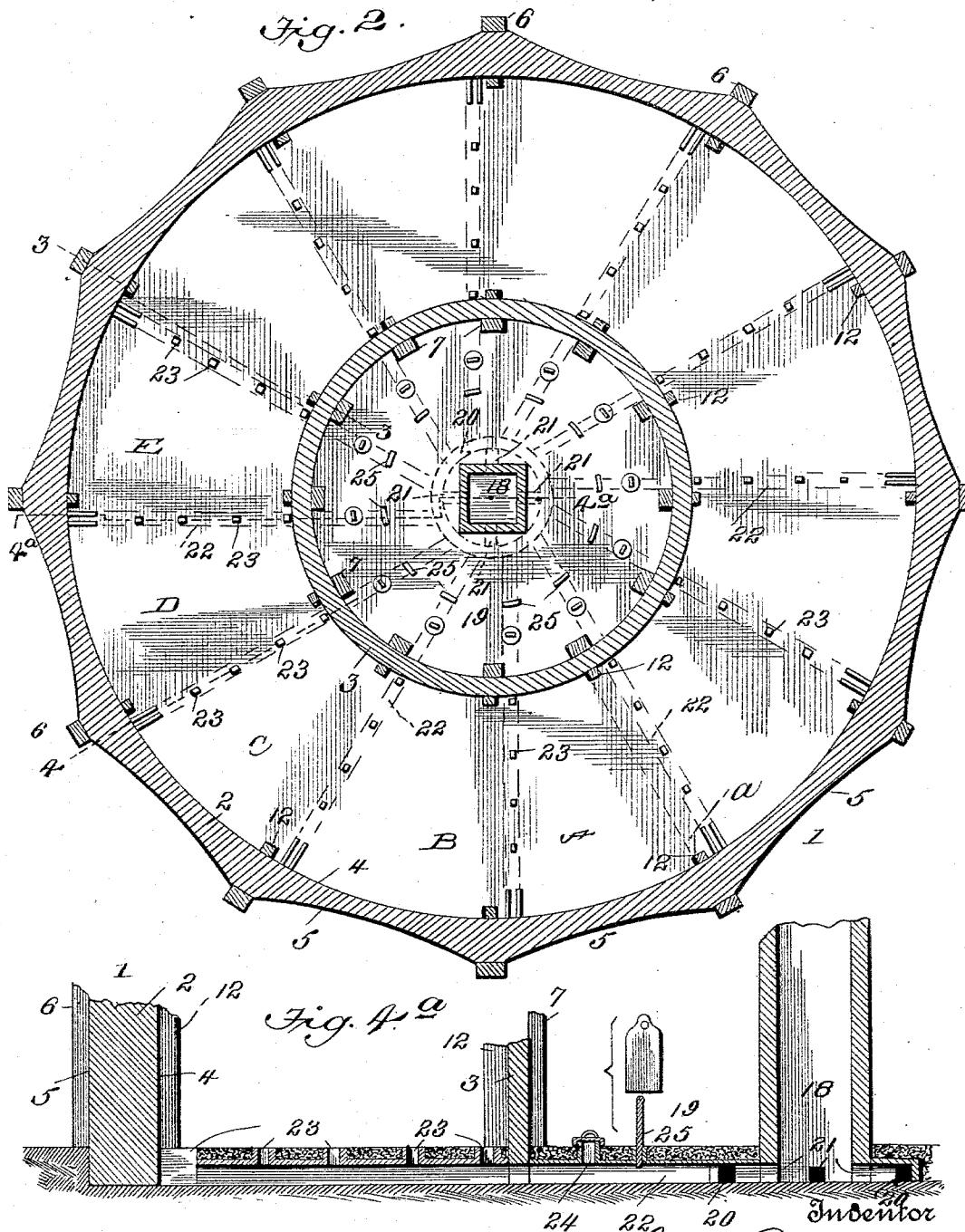
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Witnesses

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By

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UNITED STATES PATENT OFFICE.

CHARLES R. MONROE, OF WASHINGTON, DISTRICT OF COLUMBIA.

CONTINUOUS BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 531,850, dated January 1, 1895.

Application filed September 29, 1894. Serial No. 524,484. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. MONROE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Continuous Brick-Kilns; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to that class of brick kilns known as continuous, and it has for its object to have at all times the same amount of heat distributed over a certain area filled with brick to be burned.

A further object of my invention is to so construct a kiln that expansion from the excessive heat necessary to properly burn brick, will not cause the walls to crack or break, and thus dislocate the bricks previously set to be burned.

My invention further consists in the peculiar construction and arrangement of the various parts as will be hereinafter more fully described and pointed out in the claims.

In the drawings: Figure 1 is a side elevation of my improved kiln. Fig. 2 is a horizontal section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3, of Fig. 2. Fig. 4, is a section on the line 4—4, of Fig. 2. Fig. 4^a is a section on the line 4^a—4^a, of Fig. 2. Fig. 5 is a detail plan view showing the arrangement of the fuel openings in the top of the kiln.

The same numerals and letters of reference indicate like parts in all the figures.

1 represents my improved kiln, annular in general cross section, having an outer wall 2, and inner wall 3. The outer wall is of peculiar construction, and I desire to make special mention thereof. The inner surface of the outer wall 2, is annular as shown at 4, the outer surface being divided into arch shaped portions, making the outer wall a series of arch shaped sections 5. The inner wall is annular and concentric with the inner surface of the outer wall 2. I have shown my kiln as being divided into twelve sub-kilns, but desire it to be understood that any number of divisions may be made without depart-

ing from the spirit of my invention. At the apex of the curves forming the outer arch shaped surface of the outer wall are posts 6 and directly on a line with and toward the center of the kiln, and against the inner surface of the inner wall, I place a corresponding post 7, the lower ends of these posts being anchored in the ground, and the upper ends extend above the top of the kiln and support the roof 8. At a suitable point these posts are connected by a tie rod 9, threaded for nuts and nutted as usual passing directly above the arch 10, of the sub-kilns. It will thus be seen that should the heat expand the inner walls the parts will bind or lock, owing to the convex surface of the inner wall being heated; and likewise should the outer wall expand the parts will bind, owing to the outer surface thereof being arched, and as the point of intersection of the arched portions is braced and bolted as described, it will be readily seen that I have provided a kiln that is absolutely safe against any expansion that will crack or break the walls.

Arches 10, forming the roofs of the sub-kilns span from the inner surface of the outer wall to the outer or convex surface of the inner wall, as clearly shown in the drawings. At the intersection of these arches I build a semi-partition 12 conforming to the contour of the kiln, projecting out from the walls about fourteen inches all around. The purpose of these semi-partitions will be described hereinafter.

Sand, dirt, or the equivalent, will be packed over the entire roof of the sub-kilns, as shown at 13 in the drawings. A layer of brick 14, is then placed over the sand, forming a floor for the attendant to provide the various kilns with fuel. At various places in the roof I form suitable fuel openings 15, preferably distributed as shown in the drawings, through which fuel is fed to the sub-kilns when it is desired to burn brick. Short pipes 16 having caps or covers 17, surround the fuel openings.

In the center of the kiln is the chimney 18, an air space 19 being formed between the inner wall and the chimney. An annular air space or flue 20, surrounds the chimney, being connected to the bottom of the chimney by four short flues 21. Radiating from the annular flue and leading to the respective sub-kilns, and under the floor thereof, are main flues

22, having draft openings 23, communicating with the burning chamber of the sub-kilns. These main flues are located along one side of the respective sub-kilns and along side of one of the semi-partitions. A draft opening 24, is provided between the inner wall and the chimney, and a cap or cover is provided to regulate the draft to any one of the sub-kilns. I also provide a gate or valve 25 so that the draft may be cut off from the chimney when the bricks have been sufficiently burned.

In starting my improved kiln I first build a solid wall of green brick, covering the outer side thereof with paper along the semi-partition *a*, that the heat may be directed to the adjacent sub-kilns. Then I fill the sub-kilns A, with green brick, setting them with proper spaces between them so that the fuel will be evenly distributed throughout the area to be burned. Then I fill the sub-kilns B, C, and D, with green brick in the same manner as A, after which the entrances *b* of the sub-kilns A, B, C and D are walled up. The gates or valves 25, of the sub-kilns A, B, and C will be closed. Fire is now started in the sub-kiln A, fuel being fed to the fire through fuel openings 15, in the top of the kiln desired to be burned. The heat arising from the fire in the sub-kiln A, passes through the spaces in the temporary walls of green brick against the semi-partition, to the adjoining sub-kilns B, C and D, through the draft openings 23, in D to the chimney. While the kilns before described are burning the adjacent kilns are being filled with green brick, so that by the time the bricks in sub-kiln A, are thoroughly burned, the gate or valve 25 in the main flue of said sub-kiln is opened, the cover or cap of the draft opening 24 in the same flue is removed, the covers of the fuel openings of sub-kiln A are removed and the bricks are permitted to cool, the gate or valve 25 in the main flue in sub-kiln E, is opened, and the gate or valve 25 in the main flue of sub-kiln D is closed. Thus the heat is directed to the adjacent sub-kiln E, and out through the main flue to the chimney. This process is continued indefinitely one sub-kiln being burned in every twenty-four hours.

It will, of course, be understood, that any space left between the sub-kiln having been burned, and the one adjoining burning will be filled so as to keep the cool air out of the kiln burning.

A sheet of paper is pasted over each of the walls of green brick built against the semi-partition, so as to retain the heat within the kilns burning and direct the heat down

through the draft openings in the last sub-kiln thereof. When it is desired to burn the adjacent sub-kiln to the last of a series being burned, the paper may be torn off in any desirable way. For instance, ropes may be hung through the fuel openings having a series of hooks on the end, and by pulling the rope cause the hooks to tear openings in the paper which will start the draft in the adjacent kiln. After the draft is started the heat will burn the paper thus leaving spaces between the brick for the heat to find its way to the draft openings in the kiln of green brick.

The draft flues 24, between the inner wall and the chimney have a double purpose. They provide means whereby a draft may be directed to cool the brick after they have been burned sufficiently, as above stated; and they are also used when it is desired to gain a greater draft while the bricks are being burned, the gates or valves being used in combination with the said flues 24 at will of the attendant, according to the amount of heat required to properly burn any particular sub-kilns.

Having thus described my invention, what I claim is—

1. A circular continuous brick kiln, having an outer wall, its inner surface annular and its outer surface divided into arch shaped portions, substantially as shown and described.

2. In a circular continuous brick kiln, an inner annular wall, an outer wall annular on its inner surface and having arch shaped portions on its outer surface, substantially as shown and described.

3. In a circular continuous brick kiln, an inner annular wall, an outer wall annular on its inner surface and having arch shaped portions on its outer surface, posts or braces at the apex of said arch shaped surfaces of the outer wall, and posts on a radial line with the posts of the outer wall and bearing against the inner surface of the inner wall, and tie rods connecting said posts, substantially as and for the purpose set forth.

4. In a circular continuous brick kiln, the combination with the outer and inner walls, posts arranged at intervals against said outer and inner walls, tie rods connecting said posts, an arched roof, and semi-partitions, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES R. MONROE.

Witnesses:

W. H. BARNES,
JOHN L. WEAVER.