

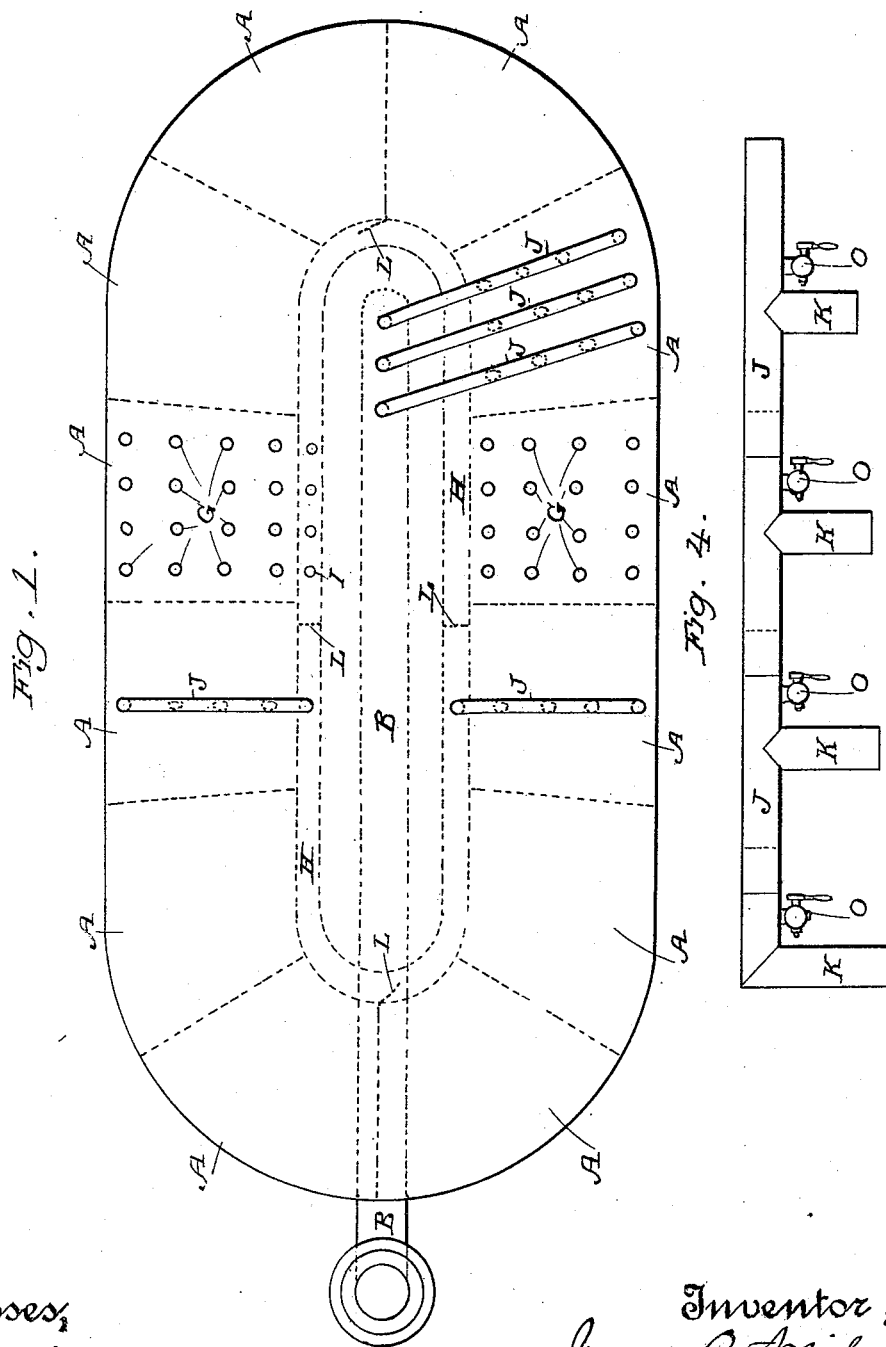
(No Model.)

2 Sheets—Sheet 1.

J. O. NEIL.
CONTINUOUS BRICK KILN.

No. 492,965.

Patented Mar. 7, 1893.



Witnesses,
J. A. Bayless

Inventor,
James O. Neil
McDewey & Co. atty

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2

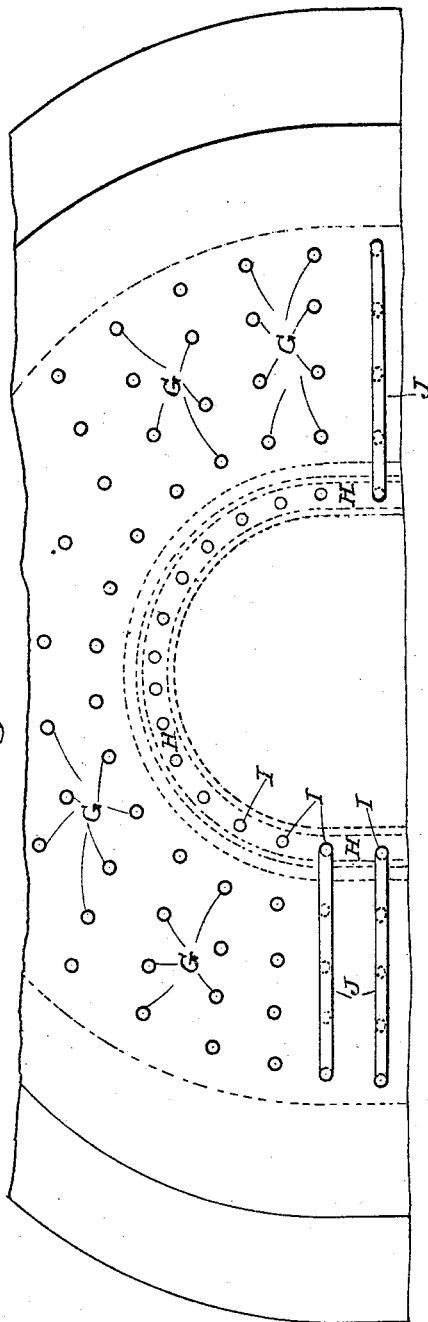
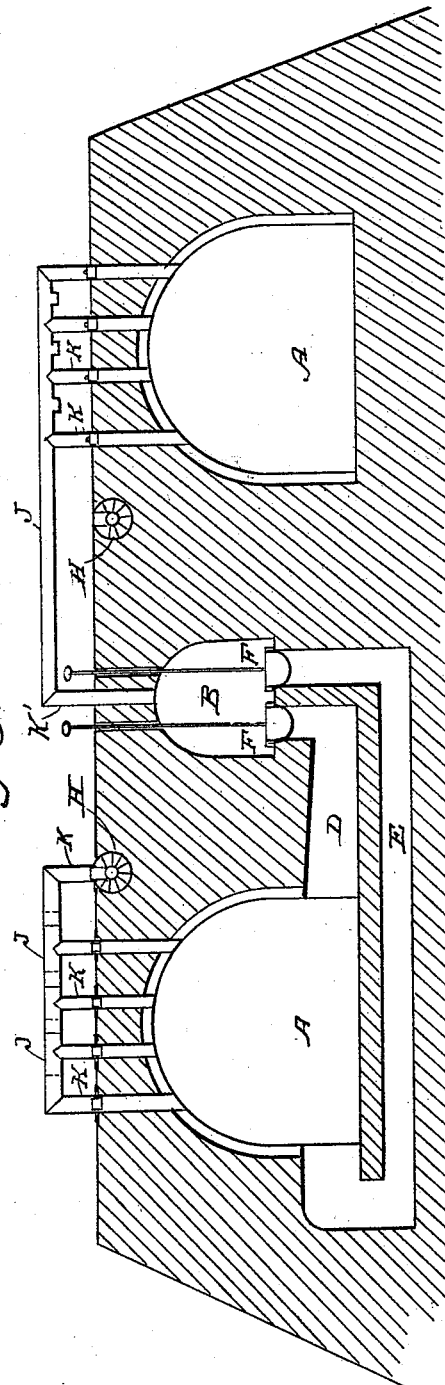


Fig. 3.



Witnesses,
G. H. Morse
J. A. Bayless

Inventor,
James O. Neil
By Dewey & Co. atty

UNITED STATES PATENT OFFICE.

JAMES O. NEIL, OF SACRAMENTO, CALIFORNIA.

CONTINUOUS BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 492,965, dated March 7, 1893.

Application filed March 16, 1892. Serial No. 425,182. (No model.)

To all whom it may concern:

Be it known that I, JAMES O. NEIL, a citizen of the United States, residing at Sacramento, Sacramento county, State of California, have invented an Improvement in Continuous Kilns; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in kilns for burning brick and other similar wares, and it consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a top plan showing the general arrangement of my kiln. Fig. 2 is an enlarged plan of a part of one end of the kiln. Fig. 3 is a vertical transverse section of the kiln. Fig. 4 (Sheet 1) is an enlarged view of one of the conducting pipes.

In the construction and operation of continuous kilns a circular or elliptical structure is formed, having chambers extending all around adjacent to the exterior wall and an interior passage into which smoke and products of combustion are led from the burning chambers, and from thence to the chimney.

The kilns are usually built up of brick and have the continuous series of chambers A extending around the whole circumference. These chambers have suitable doors or entrances at the sides through which the bricks are set in the kiln for burning and afterward removed. During the process of burning, these exterior doors are closed and not opened until it is desired to remove the bricks.

B is a passage which, in the present case, is shown as located centrally in the kiln between the two sides, and this passage connects with the chimney through which the products of combustion are conveyed away.

D and E are passages leading from the kiln chambers to this smoke passage, the passage D leading from the inner side of the chamber, near the bottom, and discharging into the smoke chamber, and the passage E, leading from the outer side of the chamber, thence, in the present case, passing beneath the floor and discharging into the smoke passage B.

F F are dampers by which either of these passages may be closed so as to divert the draft through the other.

In the top of the kiln are numerous passages G through which fuel is introduced when the burning is taking place.

In my invention I form a passage H extending entirely around the inner periphery of the kiln as shown in the partial plan view and having holes I opening into it at intervals from above. These holes correspond with the position of the fire holes G, and are approximately in line with these holes.

J J are pipes formed in sections so as to be conveniently fitted together with slip joints, and these pipes have the short vertical branches K adapted to fit into the holes in the top of the kiln, and also into the holes in the passage previously described. These pipes serve to convey the hot air from those chambers in which the burning has been finished and which are cooling out, into this continuous passage, and this air is carried by this passage H around to the point where chambers have been recently filled with the green bricks, which are already partly dried. At this point the air is taken out from the passage H by similar sets of pipes J, and delivered through the holes in the top of the kiln so as to permeate among the bricks within the chamber, and thus dry them further, and prepare them for the application of the higher heat by which they are to be burned. Valves or gates L are placed in this passage at intervals, and the proper ones are closed or opened, to direct the heated air to the desired point. In this manner I am enabled to economize considerably, and apply the waste heat from the cooling bricks for the purpose of preparing those which are to be burned.

In order to more economically carry off what is termed the "water smoke" from the bricks (green bricks when first introduced) I have shown similar sets of pipes J with branches K to connect them with the openings in the top of the kiln chambers containing the green bricks. The horizontal pipes J are continued by additional sections to a point where a vertical connecting section K' will deliver directly into the smoke passage B through an opening made for the purpose. By this construction, I am enabled to convey away a great portion of the moisture which is in the bricks when they are first set in the chamber, and prepare them for the further

application of the drying heat which is afterward applied by means of the passage H, and the bricks are thus gradually prepared for burning. That portion of the moisture which
5 is in the bricks in the lower part of the chamber, is conveyed away through the passages D and E, while all that in the upper part of the chamber is conveyed out through these supplemental pipes and passages at the top.
10 As the vapor which escapes from the chambers into these pipes becomes reduced in temperature, it is condensed into a liquid form, and unless some provision is made for withdrawing it, it will flow down through the subsequent vertical passages K into the upper
15 part of the chamber from which it has been recently expelled. In order to prevent this, I have shown cocks O situated intermediate between the vertical passages, and these being
20 opened allow the condensed moisture to flow out through them just before reaching the next adjacent vertical passages.

Having thus described my invention, what I claim as new, and desire to secure by Letters
25 Patent, is—

1. In a continuous kiln, the successive independent burning chambers, a smoke flue and chimney common to all the chambers, passages D and E connecting the interior and

exterior sides of each chamber with the flue, 30 and dampers in said passages, a continuous passage H extending around the inner periphery of the kiln, with openings in the top and intermediate dampers, and horizontal pipes, adapted to connect at one end with the fire
35 holes in the top of the kiln and having vertical branches K, K', connecting with the passage H and the smoke flue respectively, substantially as herein described.

2. In a continuous kiln, the successive independent burning chambers, vertical openings in the tops of said chambers, a smoke flue common to all the chambers, and independent adjustable pipes by which communication is made between the chambers and the
40 smoke flue, and draw off cocks situated between the vertical branches of said pipes, whereby the water is discharged from each section without passing into the subsequent
45 vertical passages, substantially as herein described.
50

In witness whereof I have hereunto set my hand.

JAMES O. NEIL.

Witnesses:

S. H. NOURSE,
J. A. BAYLESS.