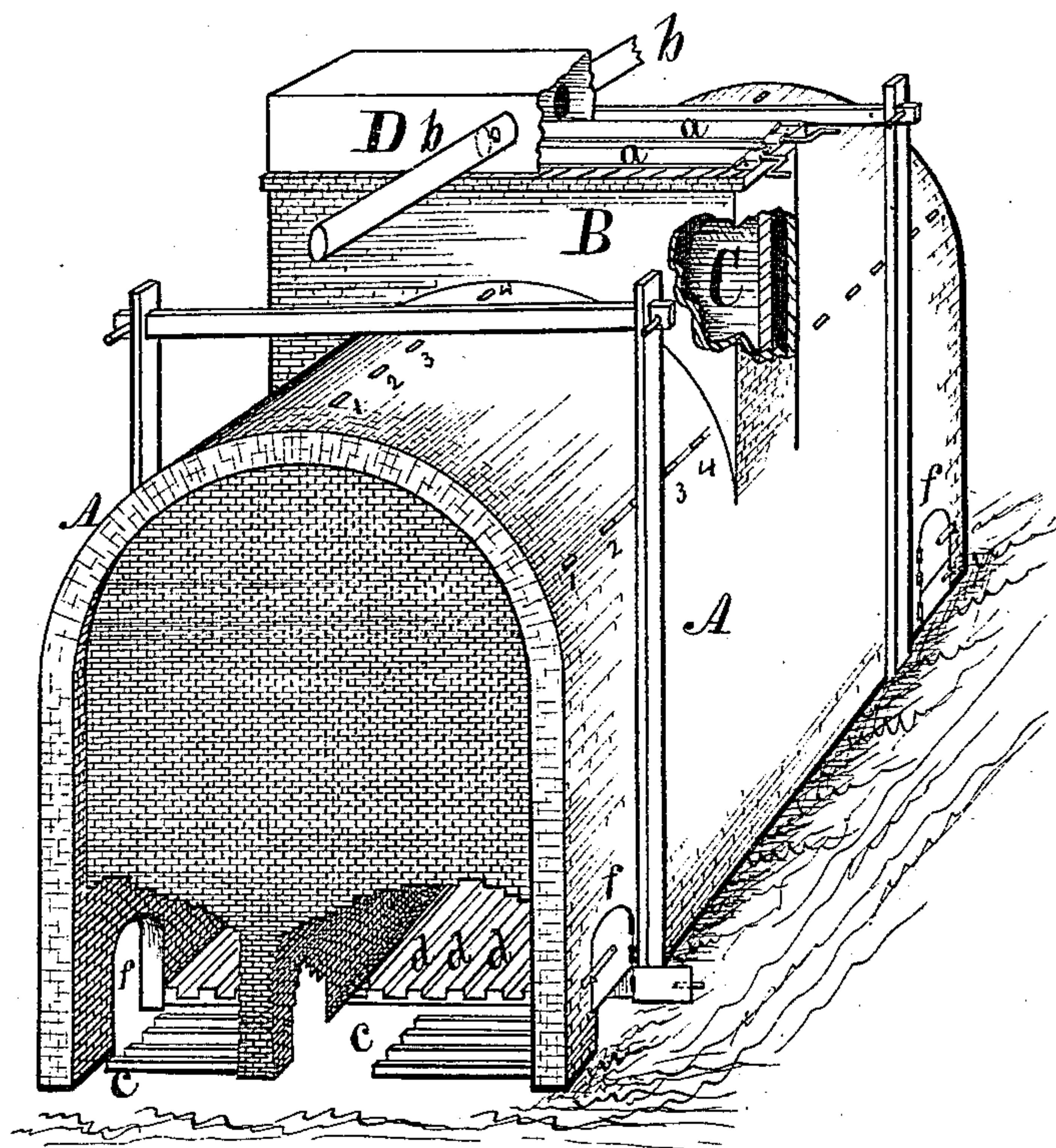


J. & J. K. O'NEAL.

Brick-Kilns.

No. 148,843.

Patented March 24, 1874.



Witnesses,
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J. S. Lewis.

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UNITED STATES PATENT OFFICE.

JOHN O'NEAL AND JAMES K. O'NEAL, OF MARSHALLTOWN, IOWA.

IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. **148,843**, dated March 24, 1874; application filed January 19, 1874.

To all whom it may concern:

Be it known that we, JOHN O'NEAL and JAMES K. O'NEAL, of Marshalltown, in the county of Marshall and State of Iowa, have invented an improved oven or kiln for burning brick, tiles, and earthenware of any kind, of which the following is a specification:

The object of our invention is to provide a permanent kiln or oven that will facilitate the drying and manufacture of brick, and save time, labor, and fuel in the burning of brick and other earthenware manufactures. It consists in the manner of forming, arranging, and combining a chimney-cap having heat-conducting pipes with a double chimney having adjustable covers, to co-operate with a double open-ended permanent kiln, having a permanent roof, a series of ports, fire-grates, flues, and doors, as hereinafter fully set forth.

Our drawing is a miniature perspective view, illustrating the construction and operation of our invention.

A A represent two parallel walls, built permanently of brick and mortar upon suitable foundations, and joined at their tops to form an arched roof. The space between the walls, their thickness, length, and height, may vary as desired to produce kilns of different capacities. Suitable frame-work may surround and brace the walls, as represented in the drawing. B is a permanent chimney, walled up across the center of the arched structure A A. C C is a division-wall, carried up through the center of the chimney B to divide the structure A A into two complete compartments. D is a sheet-metal chimney-cap, applied and secured to the chimney in any suitable manner for the purpose of controlling heat. *b b* are heat-conducting pipes, designed to convey and utilize heat that usually escapes and is lost. *a a* are adjustable covers on the top of the chimney, and serve to open and close the chimney-flues alternately, as desired. The fire in

one compartment of the double kiln may be thereby used to burn brick in one end or compartment and dry brick in the other; or the heat may be conveyed through the pipes *b* to independent structures, and utilized for any purpose for which artificial heat may be desired. Suitable registers or dampers in the pipes *b* can be used to shut off the heat at any point desired. 1 2 3 4 represent a series of ports in the kiln A A for regulating the draft through the kiln. They are formed by leaving openings in the wall, which can be readily closed by slipping in loose brick, or in any other suitable manner. One row of ports is in the top and center of the arched roof, and one row at the base of each side of the arch or top of each wall. *c c* are fire-grates fixed in suitable boxes or pits; *d d d*, a series of flues leading from the fire-grates and fire-chamber to the center wall C. These flues may be formed of brick, tiles, or in any suitable manner, and covered with a layer of brick or tile. *f f* are doors in front of the grates *c*, for the purpose of putting in fuel and tending the fire.

When the unburnt brick have been placed in the kiln, the open ends can be closed with brick and mortar, or in any other suitable way, and in such a manner that they can be readily opened again when the brick are burned and ready for removal and use.

We claim as our invention—

The chimney-cap D, having heat-conducting pipes *b b*, and the adjustable covers *a a*, combined with the double chimney B and double kiln A A, having the series of ports 1 2 3 4, fire-grates *c*, flues *d*, and doors *f*, substantially as described, and for the purposes specified.

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JAMES K. O'NEAL.

Witnesses:

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