S. MEHAFFEY & G. P. GREAR.

BRICK-KILN.

No. 184,046. Patented Nov. 7, 1876.

Fig 1.

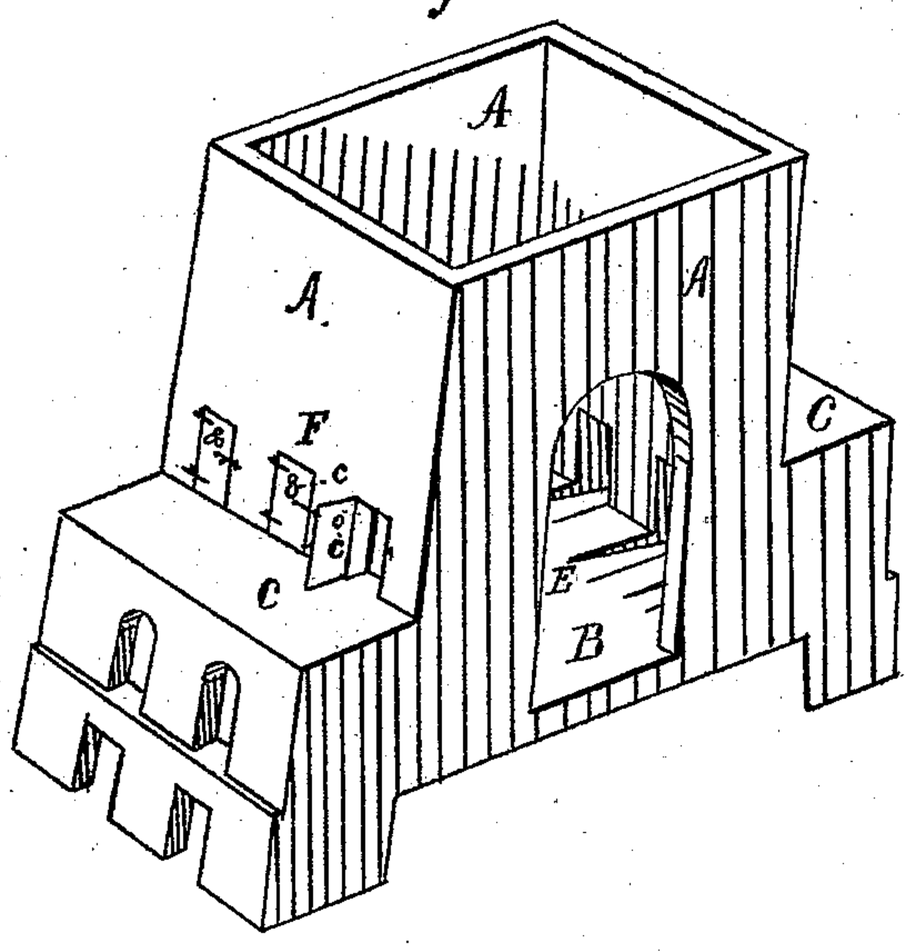
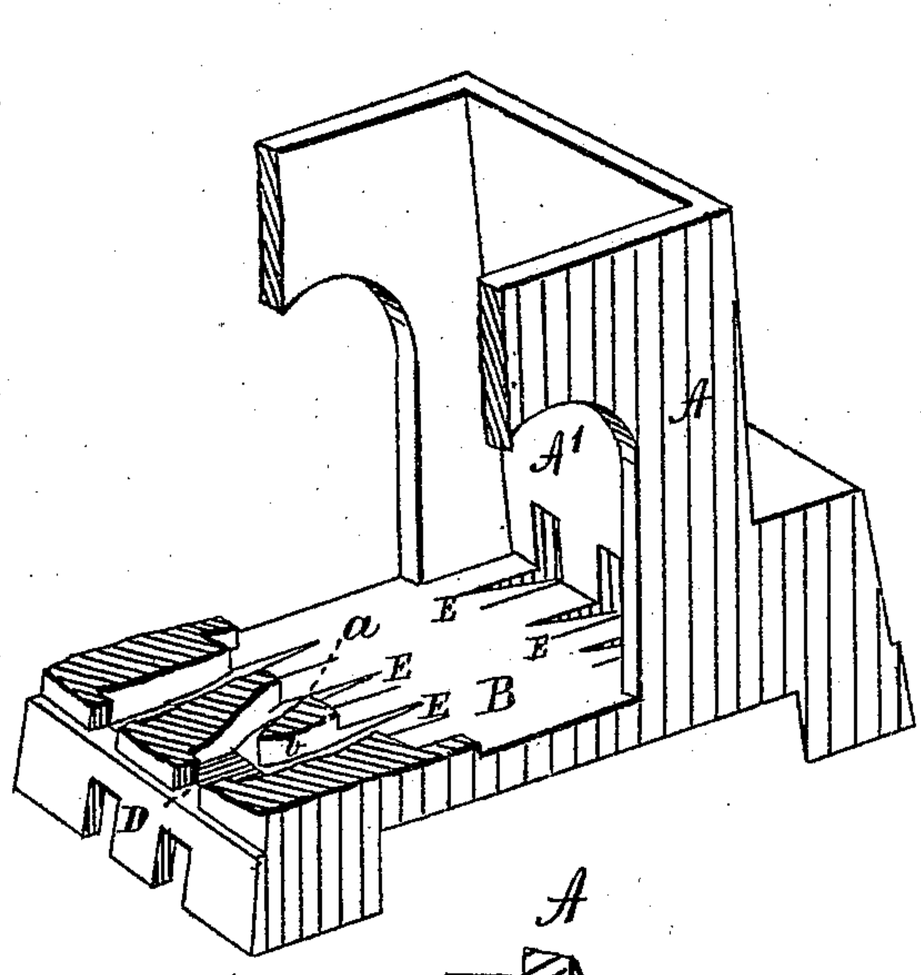


Fig 2.



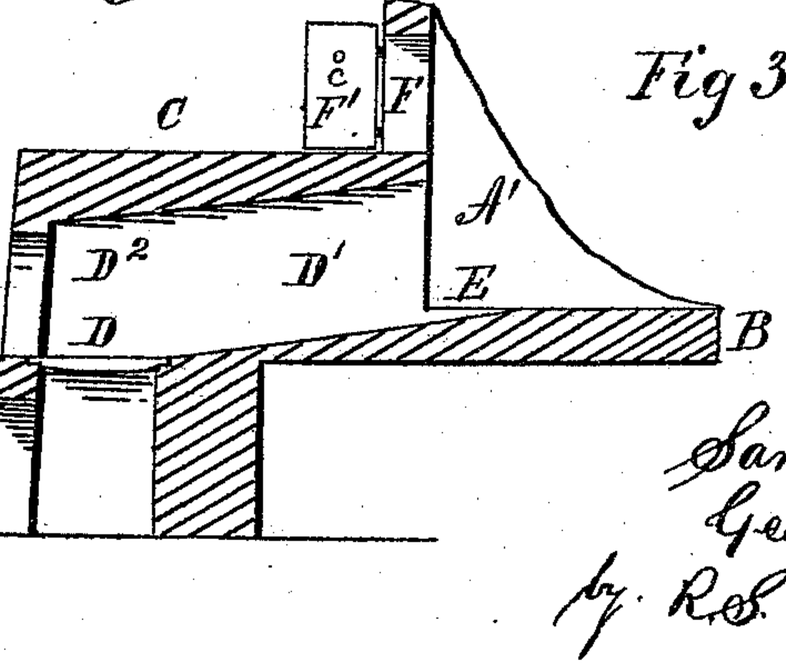


Fig 3

Witnesses
B. C. Pole
J. B. Holderby

Inventors.
Samuel Mehaffey.
George P. Grear.
by R. S. & A. P. Lacey
attorneys.

UNITED STATES PATENT OFFICE.

SAMUEL MEHAFFEY AND GEORGE P. GREAR, OF CAMBRIDGE, OHIO.

IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. **184,046**, dated November 7, 1876; application filed August 5, 1876.

To all whom it may concern:

Be it known that we, SAMUEL MEHAFFEY and GEORGE P. GREAR, of Cambridge, in the county of Guernsey and State of Ohio, have invented certain new and useful Improvements in Brick-Kilns; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in brick-kilns; and consists in a peculiar construction and arrangement of the furnaces and flues with reference to the arches of brick in the kiln, and of the means for regulating the heat, and for repairs, as hereinafter more fully set forth.

In the drawings, Figure 1 is a perspective view of a kiln made according to our invention. Fig. 2 is a horizontal section through the furnaces on one side of the kiln, and Fig. 3 is a vertical section through one of the fire-chambers on one side of the kiln.

In each of the figures similar letters of reference are employed to indicate corresponding parts.

A are the exterior walls of the kiln, and B is the floor or foundation on which the bricks are piled for burning. C C are the furnaces, which are placed outside the walls A, on opposite sides of the kiln, and are connected with the interior A′ by flues or throats, as hereinafter explained. The grate-bars D of the furnaces are placed several inches below the level of the floor B, so that the flue D^1, connecting the fire-chamber D^2 with the interior A′ of the kiln, will have an upward incline sufficient to give to the heat a momentum upward, that will force it more rapidly through the bricks than is accomplished by furnaces of ordinary construction. E are channels formed or cut in the bottom B of the kiln. They connect with and have the same slope, and form a continuation of the incline of the bottom of the flues D. They aid in giving further direction to the heat, so that the under portion of it, after entering the kiln, is carried forward and upward, striking the roof of the arch at or near the center of the interior A′.

Each fire-chamber or furnace may have its separate flue connecting with a single arch. We prefer to construct two flues for each fire-chamber, as shown at *a*, Fig. 2, so that each furnace will heat two arches. The flues are separated by a wedge-shaped partition, *b*, which has its edge toward and opposite the center of the fire-chamber D^2, so that the heat will be equally distributed between the arches with which the flues connect. The sides of the wedge *b* are slightly curved, so as to avoid all sharp turns and angles in the flues.

By the foregoing construction and arrangement of flues and furnace a great saving of fuel is effected. The heat is thrown directly into the kiln, and is forced more rapidly upward, so that the bricks at the top are heated earlier and more rapidly than where furnaces of ordinary construction are employed.

When, as often occurs in burning brick, a flue or arch gets out of order, so that the heat must be shut off, all influx of cold air is prevented by the fire being still kept up in the furnace and using the other flue.

F are a series of openings corresponding in number to the brick arches within the kiln. They are made in the walls A immediately above the furnaces C C, and are closed by the doors F′, which are kept shut, except in cases of emergency, and which are provided with peep-holes *c*, which may be opened to see the progress of the burning inside the arches.

When the flues D^1 become defective, or from any cause fail to operate effectively, and repairs are necessary, the fire in the arches may be kept up by feeding the fuel through the openings F, the doors F′ being opened on such occasions, but closed again as soon as the fuel is inserted, so as to prevent the too great influx of cold air.

In a kiln constructed according to our invention all air holes or openings, or other devices employed in ordinary kilns to let in air for the purpose of increasing draft, are dispensed with. The draft in our kiln is at all times sufficient, without additional means or devices than those shown.

Having described our invention, what we

claim, and desire to secure by Letters Patent, is—

The improved brick-kiln A, having the outer furnaces C C, with the bottom of the fire-chamber D placed below the level of the base B, and connected with the interior A′ by channels E and double upward-inclined or ascending flues D^1 D^1, separated by the wedge-shaped wall or partition *b*, and having the openings F and doors F′, all arranged and operating as and for the purposes set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

SAMUEL MEHAFFEY.
GEORGE P. GREAR.

Witnesses to MEHAFFEY'S signature:
J. MASON GOSZLER,
G. B. TOWLES.

Witnesses to GREAR'S signature:
THOS. S. TODD,
T. H. ANDERSON.