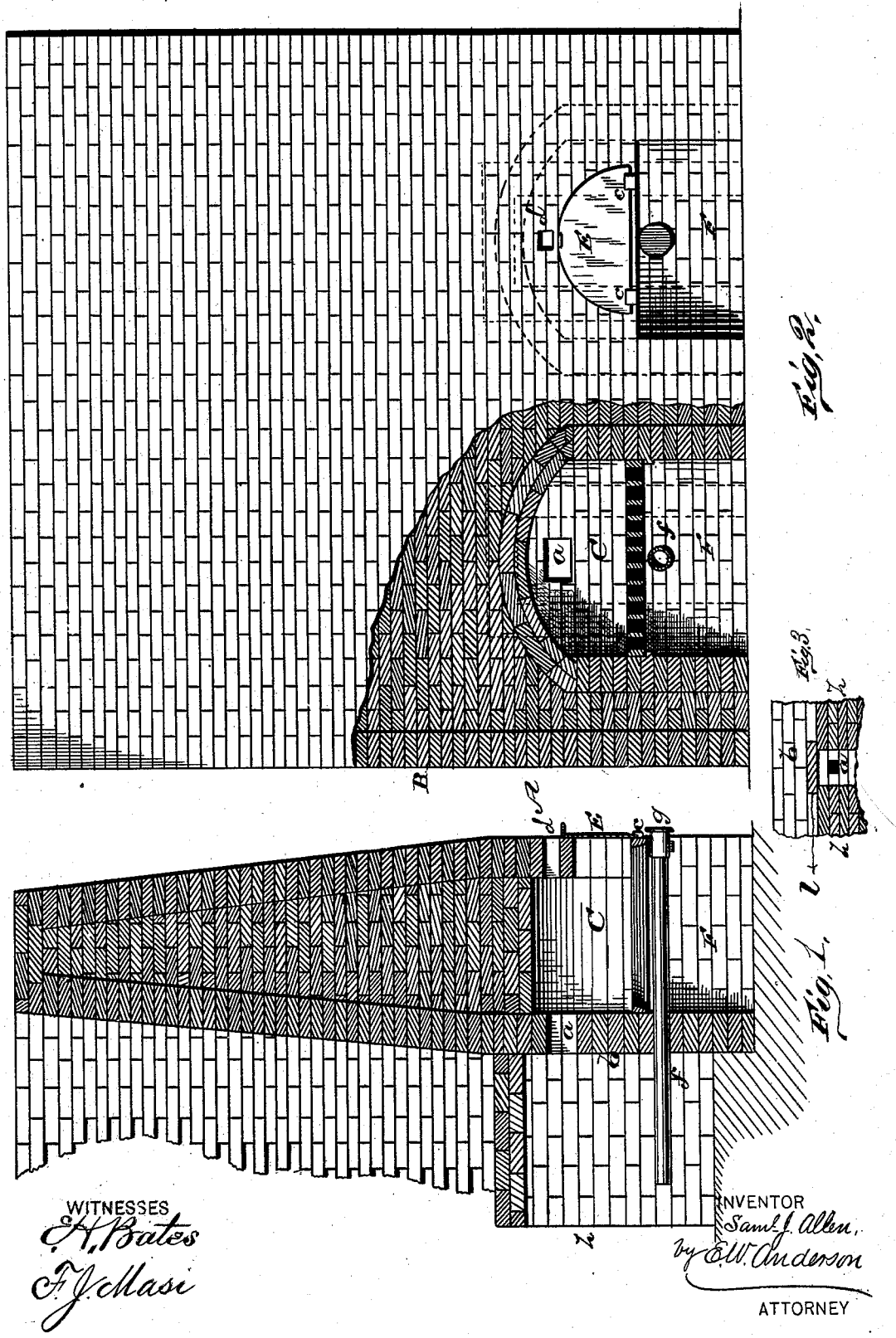
S. J. ALLEN.
Brick-Kiln.

No. 209,443. Patented Oct. 29, 1878.



WITNESSES
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UNITED STATES PATENT OFFICE.

SAMUEL J. ALLEN, OF ZANESVILLE, OHIO, ASSIGNOR TO HIMSELF AND HERMAN F. ACHAUER, OF SAME PLACE.

IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. **209,443**, dated October 29, 1878; application filed June 15, 1878.

To all whom it may concern:

Be it known that I, SAMUEL J. ALLEN, of Zanesville, in the county of Muskingum and State of Ohio, have invented a new and valuable Improvement in Brick-Kilns; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a front view of my improved kiln, with one furnace in section. Fig. 2 is a transverse section of the same, and Fig. 3 is a transverse vertical section of a kiln-arch.

This invention has relation to improvements in kilns for burning brick and other articles of like nature.

The nature of the invention consists in the construction and novel arrangement of a brick-kiln having a furnace located within the kiln wall, communicating with the arches through the eyes, and a hot-air tube or pipe located beneath the grate-bars and extending into the kiln-arches, as will be hereinafter shown and described.

In the accompanying drawings, the letter A designates a side wall, and B the end wall, of a kiln for burning brick, tiles, or pottery-ware, built of brick in the usual way.

The wall A, near its base portion, is of sufficient width—usually about two and one-half feet, and batters, as shown in Fig. 1, to about the width of nine inches at the top. These dimensions are, however, not invariable, but may be changed according to circumstances.

In the thicker portion of the wall A, somewhat above the floor of the kiln, are built the furnaces C, of arched form, the said furnaces being at right angles with said wall.

The furnaces C communicate with the kiln-arches D by means of eyes *a*, formed in the back wall, *b*, of the furnace, near the crown of the arch, and are closed in front by the removable doors E, that are supported by the hooks *c* and lie snugly against the mouth of the furnace.

Above the furnace, and leading into each kiln-arch, is a peep-hole, *d*, through which the condition of the kiln may be inspected, and below it an ash-pit, F. Below the grate *e* of the furnace, and in close proximity thereto, is a tube, *f*, reaching from the front of the grate, extending through wall A, and terminating three or four feet within the kiln-arch.

The portion of the pipe within the arch should be made of fire-clay or other sufficiently refractory material to prevent its fusing under the intense heat therein generated, and the inside of the furnaces should be of the same or a similar material.

The outer end of the pipe *f* is closed by a removable cap, *g*, or other equivalent device, as a valve or cock, which excludes air from the kiln-arch until the said pipe shall have become sufficiently heated not to chill the arch-bricks and cause them to crack to pieces. When they are open these pipes supply a hot blast of air to the arches, which, being decomposed therein, greatly increases the heat by the combustion of the hydrogen evolved by such decomposition.

The kiln-arches are constructed of unburnt brick, and its side walls, *h*, are usually about six inches apart, in order to be spanned by a singe brick, as shown in Fig. 3. When desired to be wider, the bricks *l* covering the arch-space may be made of greater length than usual.

It will be observed that by this construction the inside of the arch-walls are smooth, and the overjutting of the arch-brick, common heretofore, is effectually done away with. I thus prevent any loss of the arch-brick from the cracking and splitting off of their projecting ends.

What I claim as new, and desire to secure by Letters Patent, is—

In a brick-kiln, the furnace C, located within the kiln-wall, communicating with the arches D through the eyes *a*, and the hot-air tube or pipe *f*, located beneath the grate-bars and extending into the kiln-arches, constructed and arranged to operate substantially as shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SAMUEL J. ALLEN.

Witnesses:
HERMAN F. ACHAUER,
F. S. GATES.