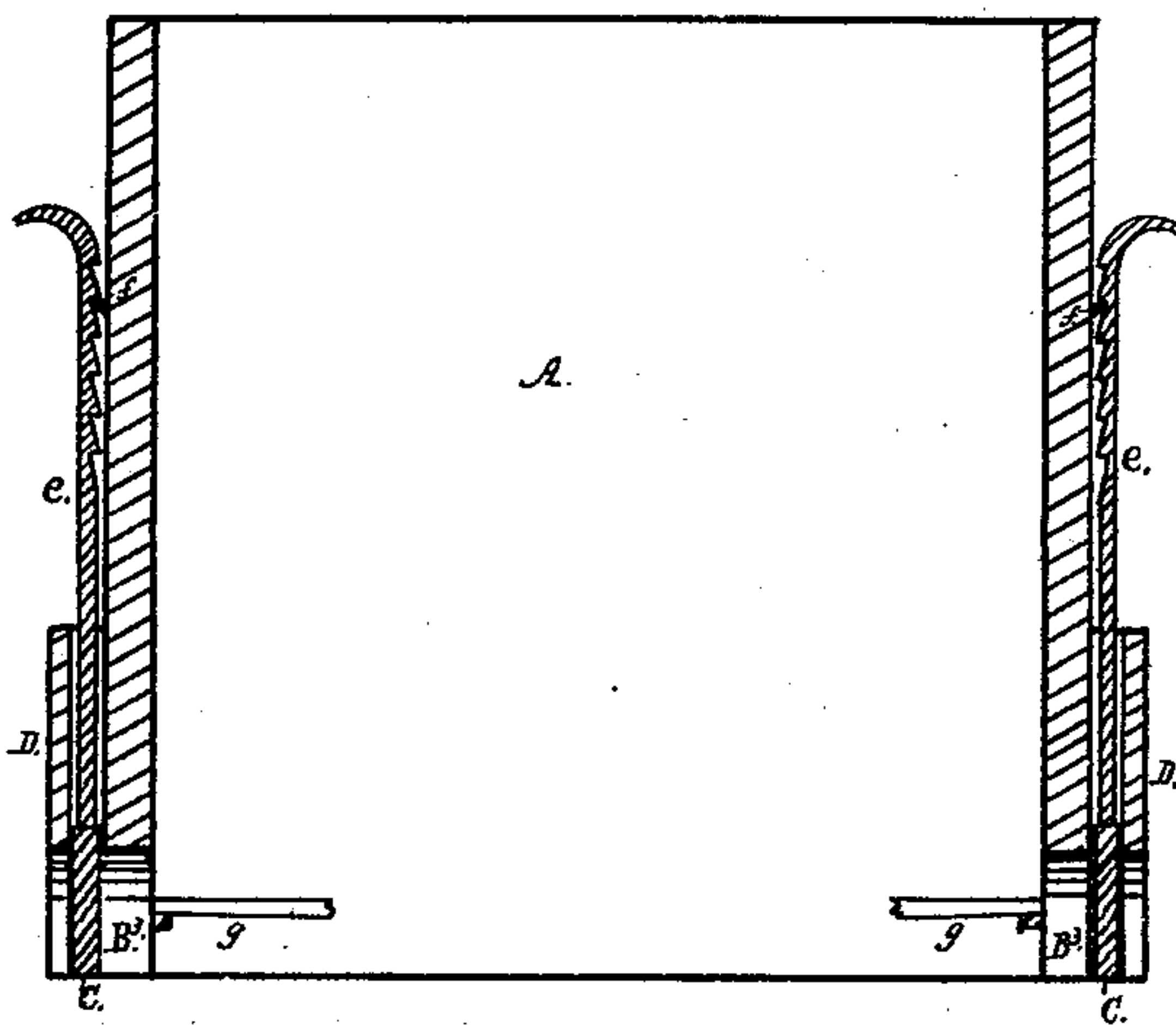
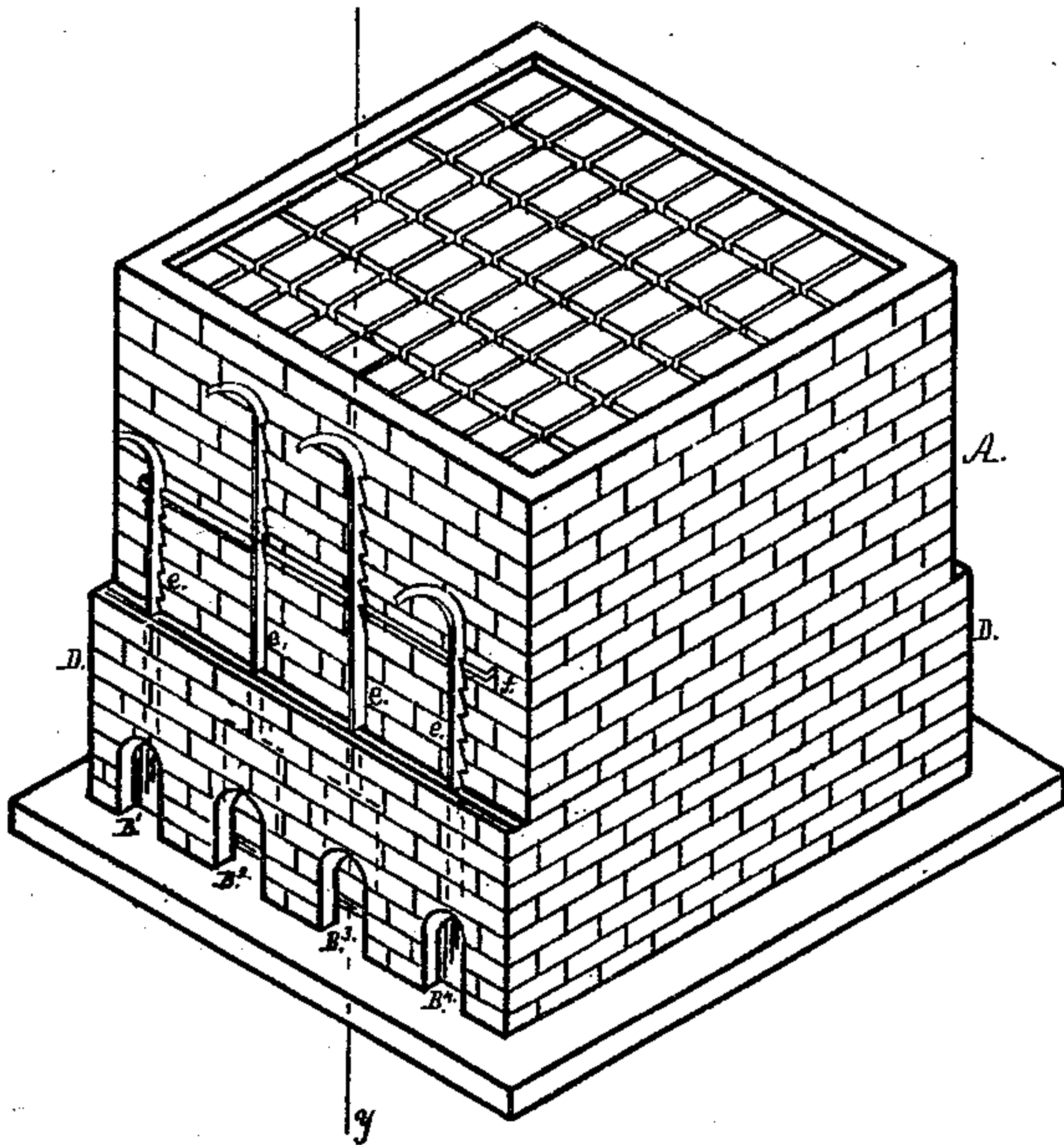


BRICK-KILN.

No. 180,113.

Patented July 25, 1876.



Witnesses.

James I. Johnston
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Inventor

W. S. Colwell.

UNITED STATES PATENT OFFICE.

WILLIAM S. COLWELL, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. **180,113**, dated July 25, 1876; application filed May 19, 1875.

To all whom it may concern:

Be it known that I, WILLIAM S. COLWELL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Brick-Kilns; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to an improvement in kilns for burning brick, and consists in providing each end of the fire-arch with an adjustable damper or door, whereby the heat in the several parts of the kiln can be controlled with ease and facility.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a perspective view of my improvement in brick-kilns. Fig. 2 is a vertical section of the same at line *y* in Fig. 1.

A represents the kiln, which is of ordinary construction, excepting that its fire-arches B are furnished with dampers C, which have their chambers in abutments D. The abutments impart strength to the side walls of the kiln, and by the use of the dampers the operator can control the heat in all parts of the furnace. The dampers are constructed of fire-tile, and are furnished with notched stems *e*. On the side walls of the kiln are secured projecting ribs *f*, constructed of iron. These ribs are used in connection with the notched rods or stems *e* for holding the dampers up in the desired position. *g* represents sections of the grate-bars ordinarily used in fire-arches. In the process of burning brick in the ordinary kiln, it is impossible to secure a uniform degree of heat in all parts of it, and therefore it is impossible to properly burn the brick, and consequently a great loss of fuel, labor, and brick follows the use of such kiln, and the common mode of burning the brick therein. By furnishing each end of the fire-arches of the kiln with dampers, as indicated at C, the operator is enabled to control the fire in the several fire-arches B so as to secure a uniform degree of heat in all parts

of the kiln by the proper manipulation of the dampers C.

In the process of burning brick in the ordinary kiln it is often the case that the brick in that part of it directly over the fire-arches B² and B³ are subjected to a great degree of heat, while those over the arches B¹ and B⁴ are subjected to a low degree of heat. At other times the greatest heat is at one side, or at one end or one corner of the kiln, which condition of things is due to the heat taking the lead to said parts; and it often requires a great amount of labor, judgment, and skill on the part of the operator, and a large amount of fuel, to change this lead of the heat and direct it to other parts of the kiln most needing it, and it is almost impossible for him to distribute the heat uniformly through all parts of it by the means heretofore employed for that purpose. But by the use of the dampers C at each end of the fire-arches, the operator can, at his pleasure, and with ease and facility, increase or diminish the heat in any part of the kiln, or distribute it uniformly through all parts of it. For example, if the heat is greatest at one side of the kiln, the dampers are closed down on that side and raised up on the other side of it, and thereby "fire across the kiln;" or, if the heat is greatest at one end of the kiln, the dampers are closed down at that end, and the dampers of the arch at the other end raised so as to cause a "blow" in that end only. If the heat in one corner of the kiln is low, and it is desirable to increase it there, the dampers are all lowered except that corner.

From the foregoing description it will be readily understood how to manipulate the dampers so as to increase or diminish the heat in any part of the kiln, or distribute it evenly through all parts of it, whereby the brick may in the process of burning them be subjected to a uniform degree of heat, and thereby produce better brick, and at less cost for fuel and labor.

I am aware that the mouths of fire-arches of kilns have been provided with doors, gates, &c., as may be seen in the patents to J. F. Speight, July 4, 1854, and to R. A. Smith, November 19, 1872; and I do not, therefore,

claim the device specified, broadly, but in contradistinction to the patents quoted.

I claim as of my invention—

In an ordinary brick-kiln, in which the burning of the brick is conducted from the arches, the abutment D, provided with the adjustable dampers C, in combination with the walls and

fire-arches of the kiln, substantially as and for the purpose hereinbefore described and set forth.

W. S. COLWELL.

Witnesses:

FRANCIS TORRANCE,
N. B. HATCH.