

(No Model.)

C. LANZ.
BRICK KILN.

No. 336,328.

Patented Feb. 16, 1886.

Fig 1.

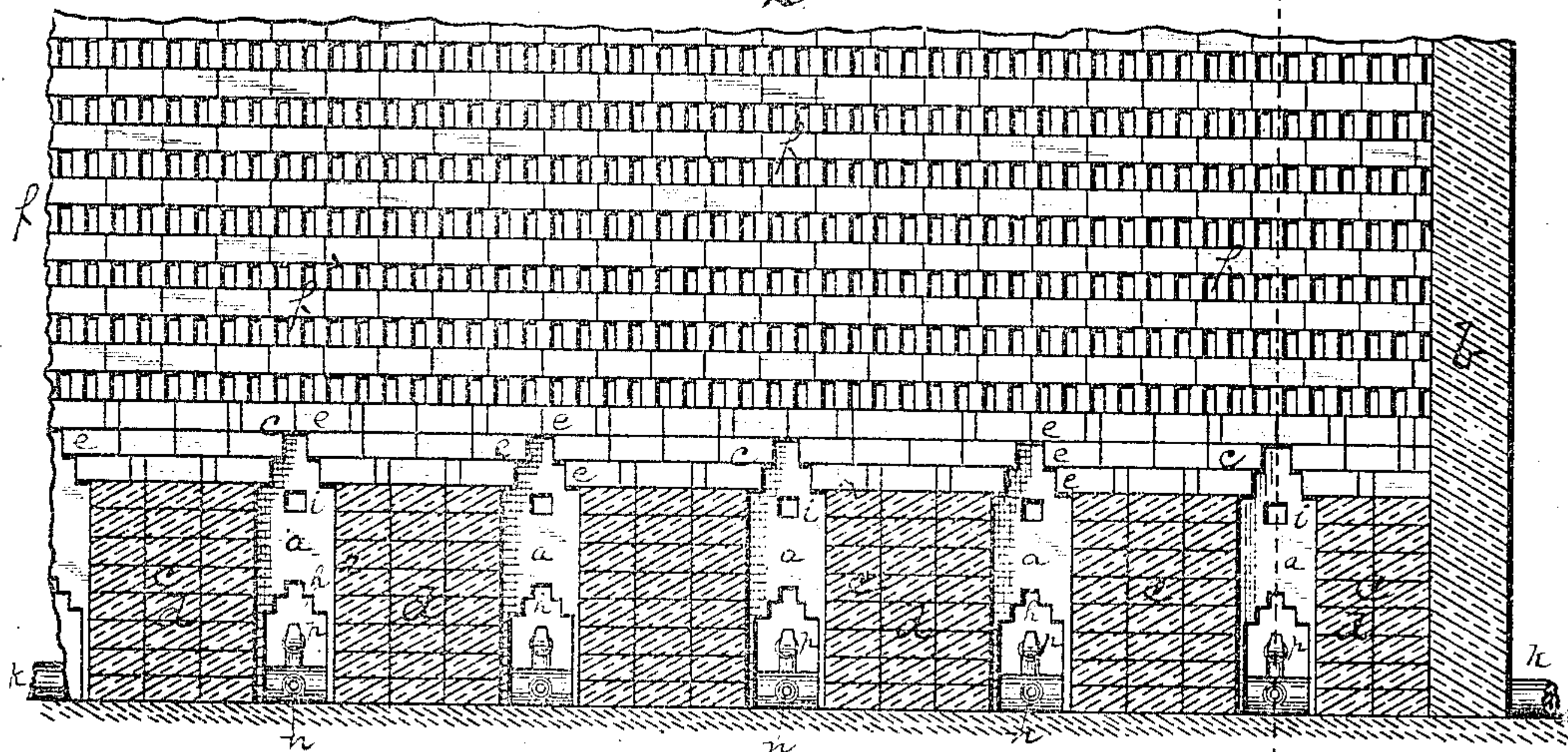
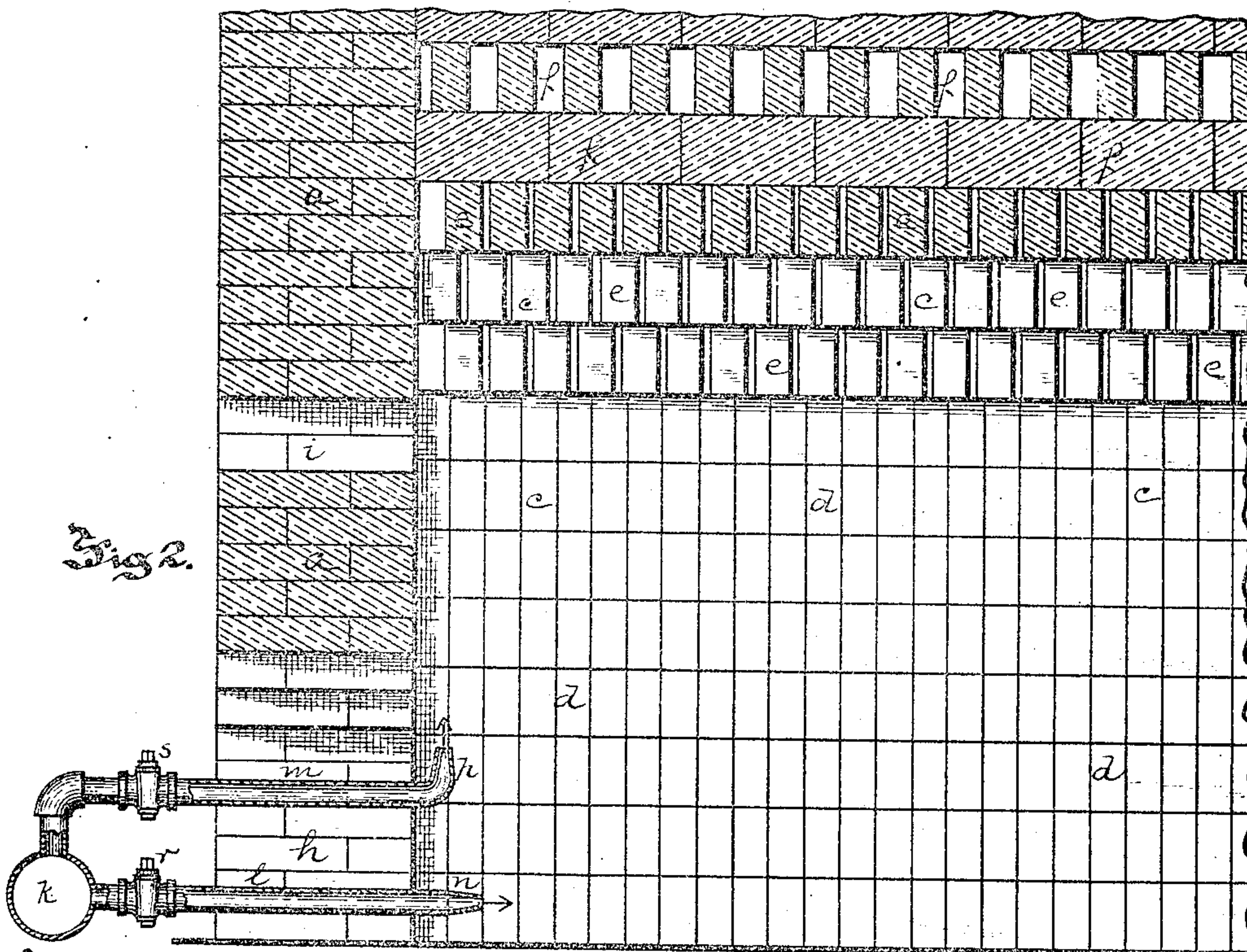


Fig 2.



Witnesses:

McCook
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CHARLES LANZ, OF PITTSBURG, PENNSYLVANIA.

BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 336,328, dated February 16, 1886.

Application filed September 21, 1885. Serial No. 177,679. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LANZ, 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 the following to be a full, clear, and exact description thereof.

My invention relates to kilns for burning bricks, and has special reference to the means for heating these kilns by natural gas or similar gaseous fuel. These kilns have generally been heated by coal or wood, and where gas was employed it was usually fed from pipes opening horizontally into the arch of the kiln, the air entering around the pipes through ports or openings in the kiln-walls, and walls being built within the arches, against which the flame struck and by which the heat and flame were directed upwardly, the heat and flame rising through the arches and corners of brick.

In the practical operation of these kilns it was found impossible to heat them evenly, as the heat and flame would pass up through the central portion of the kiln, the bricks at the sides receiving but little heat and being unbaked when the bricks in the central portion were finished, the high heat in the central portion of the kiln often burning the bricks, and thus ruining them. A further difficulty was experienced in the fact that this high heat in the central portion of the kiln would cause the greater shrinkage of the bricks in that portion, and they would sink more rapidly than those in the side portions, throwing all the bricks within the kiln on a strain. The kilns have also been constructed with pipes extending entirely across them through or below the arches, and having vertically-opening burners therein; but when exposed to the heat of the kiln these pipes would burn out rapidly, and they were also expensive, and provided no means of regulating the heat in different parts of the kiln, according to the baking of the brick.

The object of my invention is to overcome these difficulties in the employment of natural gas and similar gaseous fuel in brick-kilns.

It consists, essentially, in combining with the kiln a burner opening horizontally within the kiln and a burner opening vertically with-

in the same near the side wall thereof, the horizontal burners throwing the heat and flame toward the central portion of the kiln, while the vertical burners throw the heat and flame upwardly into the side portions of the kiln, causing the heating and baking of the bricks in these portions thereof, the kiln being thus evenly heated and the heat in the different parts thereof regulated as desired.

To enable others skilled in the art to make and use my invention I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a longitudinal central section of a brick-kiln illustrating my invention, and Fig. 2 is an enlarged cross-section of the same through one of the arches.

Like letters of reference indicate like parts in each.

The kiln is built like the ordinary brick-kiln heated by coal, except that the grates at the ends of the arches are omitted, having the side walls, *a*, and end wall, *b*, and the bricks to be baked being first built in the form of arches *c*, formed of walls *d*, closed at the top by steps *e*, and open courses *f* of bricks resting on these arches. These arches extend across from side to side of the kiln, and at each end of the arches are the ports *h*, through which the gas-burners enter, there being also sight-holes *i* above the ports, through which the condition of the bricks can be examined. Extending along each side wall *a* of the kiln is the gas-supply pipe *k*, and leading therefrom through each port *h* are the gas-pipes *l* *m*, the lower gas-pipe, *l*, having at its end the burner *n*, opening horizontally into the kiln within the arch *c*, and the upper gas-pipe, *m*, having at its end the burner *p*, which opens vertically within the arch *c*, near the side wall, *a*. The gas-pipe *l* is provided with the valve or cock *r*, and the gas-pipe *m* is provided with the valve or cock *s*. The air enters the kiln through the ports *h*, forming combustion with the gas entering through the burners *n* and *p*, and the flame and heated products of combustion from the burners *n* pass horizontally into the arches *c*, and rising through the arches heat and bake the bricks in the body or central portion of the kiln, while the flame and heated products of combustion from the vertical burners *p*

rise upwardly along the side walls and heat and bake the bricks in the side portions of the kiln. The horizontally-opening gas-burners *n* extend only a short distance within the 5 arches, as the heat generated is so intense as to rapidly burn them out if exposed thereto, the course of the flame and heat generated by the gas being directed by the position of the burners *n* and *p*, whether horizontal or verti- 10 cal, without exposing the burners to this heat.

By means of the valves *r s* in the gas-pipes the supply of gas may be accurately regulated, so as to heat and bake the bricks evenly throughout the entire kiln, the supply of air 15 being regulated by closing the ports with brick, according as it is desired to gradually warm the bricks or to submit them to a high baking heat. By means of these vertically and horizontally opening burners the heat of 20 the kiln may thus be accurately regulated to

shrink and bake the bricks evenly throughout the kiln and prevent the straining of the bricks during baking, and all liability of burning and ruining is overcome. Practical experience has also proven that the time necessary 25 for baking can be reduced at least one-fourth.

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

In combination with a brick-kiln, a gas-burner opening horizontally therein and a gas- 30 burner opening vertically therein near the side wall, substantially as and for the purposes set forth.

In testimony whereof I, the said CHARLES LANZ, have hereunto set my hand.

CHARLES LANZ.

Witnesses:

JAMES I. KAY,
J. N. COOKE.