

No. 750,600.

PATENTED JAN. 26, 1904.

E. M. CLARK.  
BRICK KILN FURNACE.  
APPLICATION FILED JUNE 11, 1903.

NO MODEL.

Fig. 1.

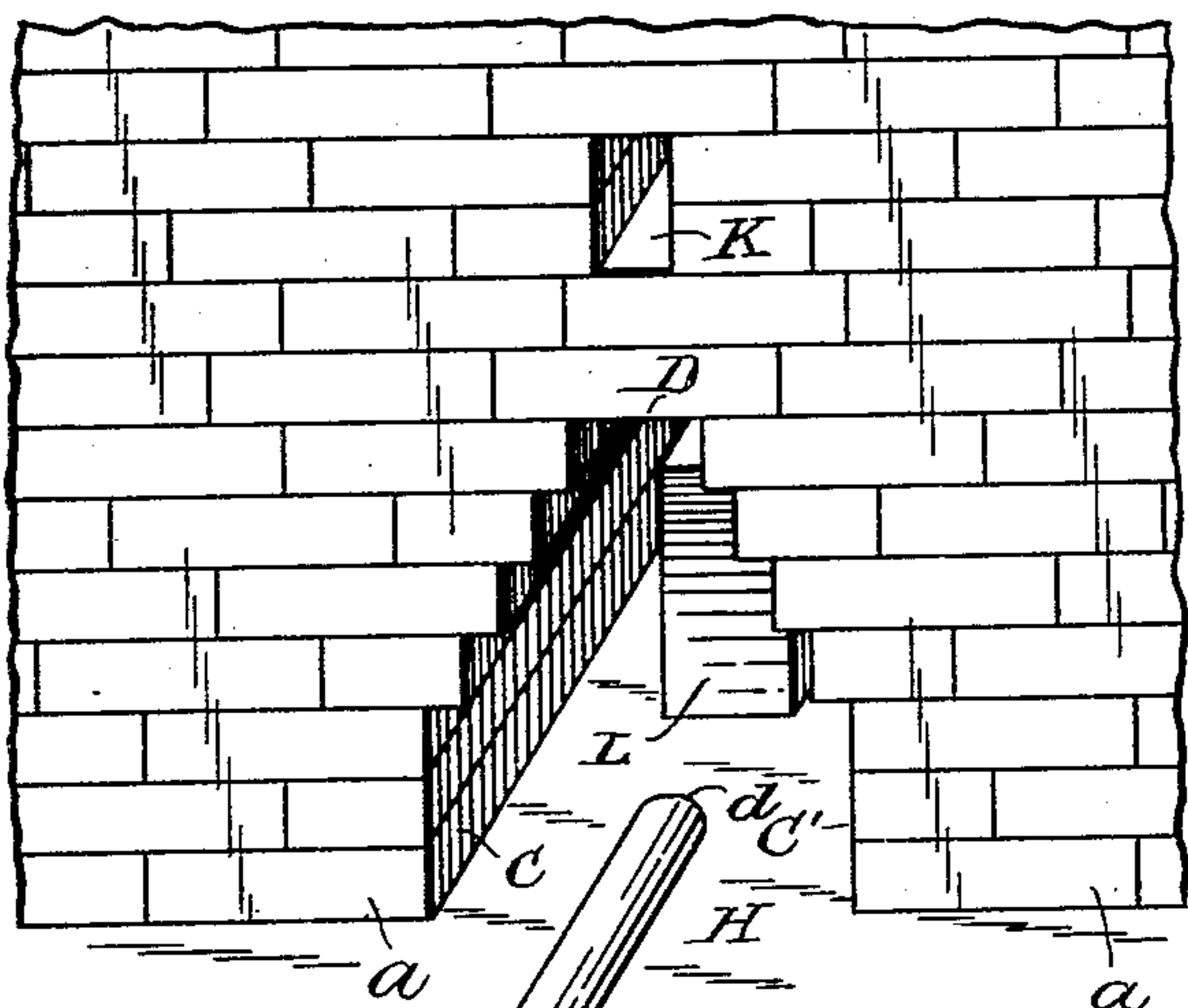


Fig. 2.

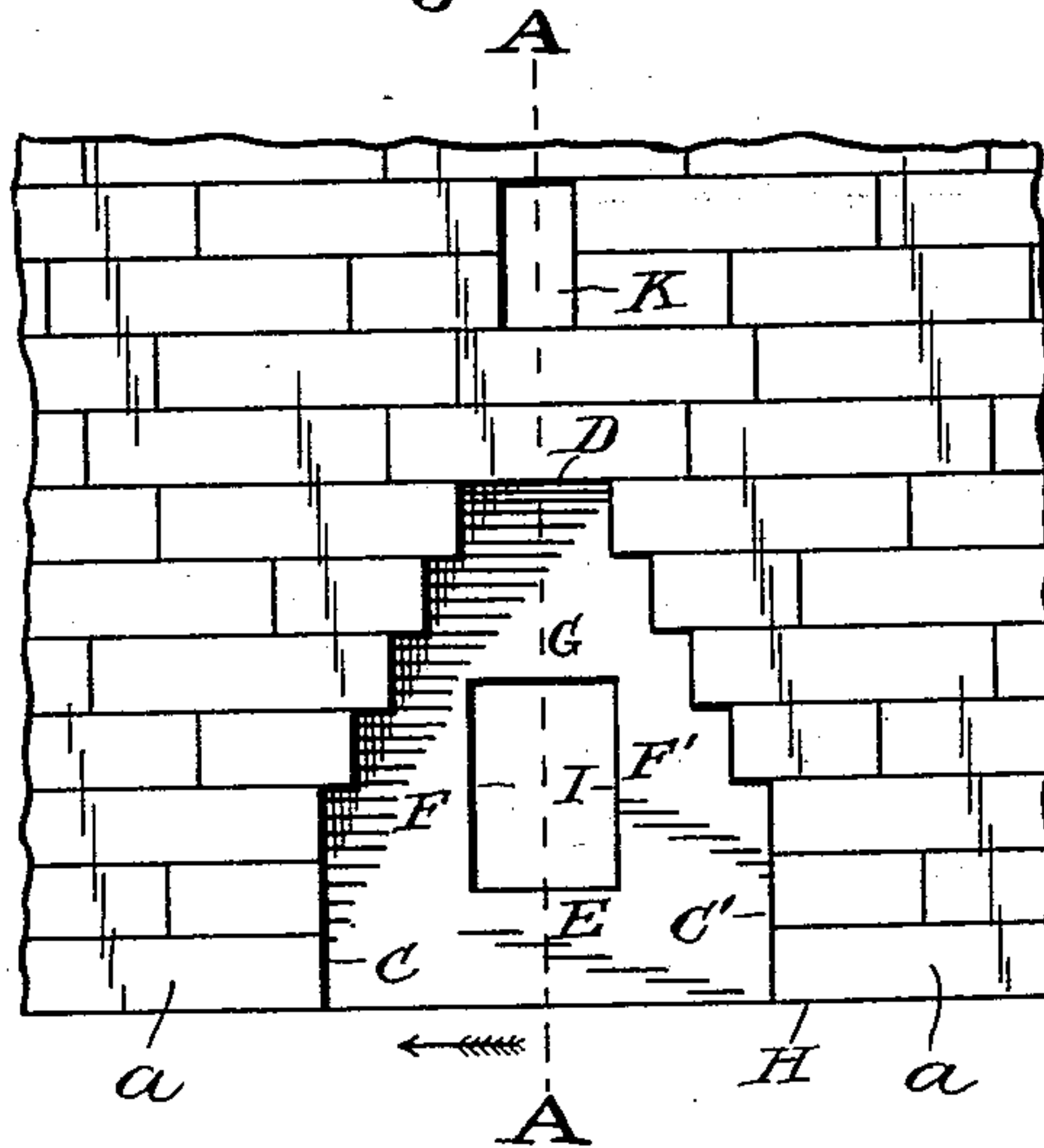


Fig. 3.

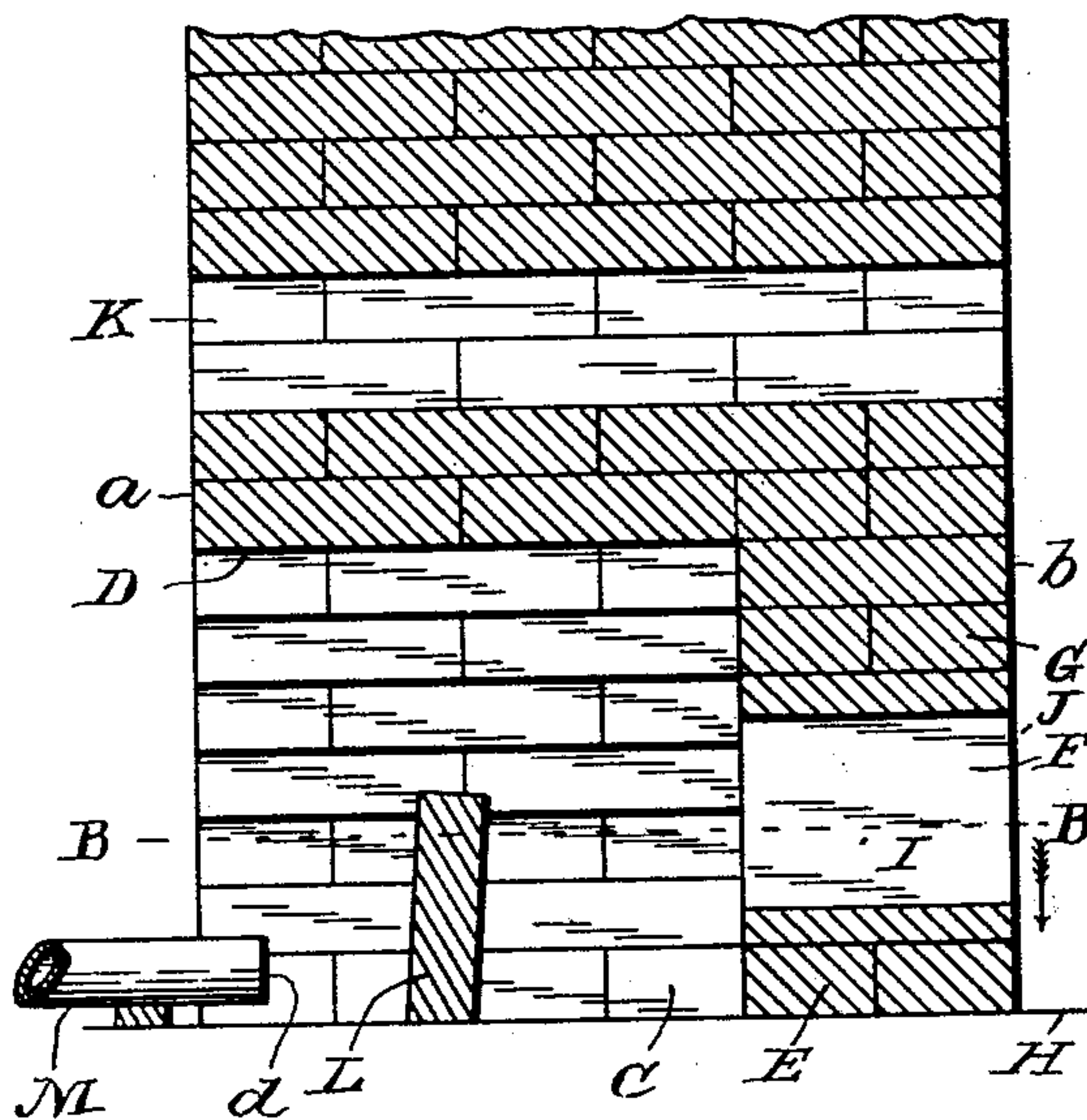
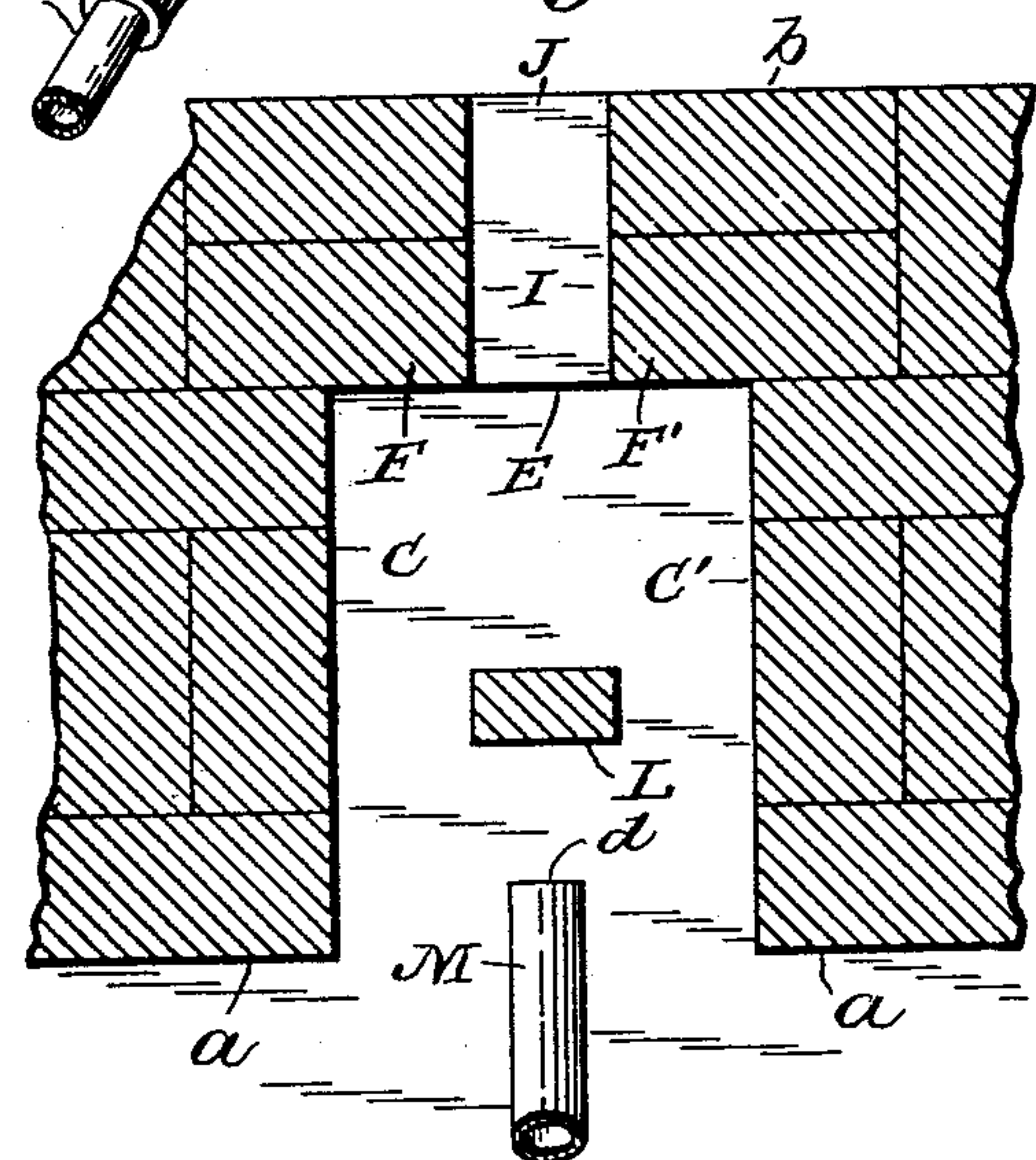


Fig. 4.



Witnesses:

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## UNITED STATES PATENT OFFICE.

ELI MELVIN CLARK, OF SYCAMORE, KANSAS.

## BRICK-KILN FURNACE.

SPECIFICATION forming part of Letters Patent No. 750,600, dated January 26, 1904.

Application filed June 11, 1903. Serial No. 160,965. (No model.)

*To all whom it may concern:*

Be it known that I, ELI MELVIN CLARK, a citizen of the United States, residing at Sycamore, in the county of Montgomery and State of Kansas, have invented new and useful Improvements in Brick-Kiln Furnaces; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in the construction of brick-kilns; and it has reference particularly to the furnaces thereof which are designed for gaseous fuel, the object of the invention being to effect an appreciable economy in the consumption of the fuel over that attained in the kilns as heretofore constructed; and a further object is to provide a gas-furnace for brick-kilns whereby the best results may be obtained in respect to the quality of burned bricks with the least number of damaged bricks.

The above-mentioned objects and others which will become apparent are attained in the invention illustrated in the accompanying drawings, in which—

Figure 1 is a fragmentary front perspective view of one of the furnaces in the wall of the brick-kiln and showing the burner as arranged in connection with the furnace; Fig. 2, a fragmentary front elevation of the kiln, showing the furnace therein, from which the baffle-wall is omitted; Fig. 3, a vertical sectional view of the furnace on the line A A, and Fig. 4 is a horizontal sectional view of the furnace on the line B B.

Similar reference characters in the several figures of the drawings designate like parts or features.

In practically carrying out my invention the furnaces are situated in the usual positions with respect to the general arrangement of the kiln-walls, so that the unburned bricks may be set, as has been heretofore done, in the kiln with reference to the furnaces, the usual arches being formed within the walls of the kilns by means of bricks that are to be burned, so as to correspond to the outlets from the furnaces proper, such temporary arches

being, of course, for the time being continuations of the furnaces in the walls; but such temporary arches are not directly involved in the present invention, which resides in the furnaces proper and in the arrangement of the gas-burners therein. The customary number of furnaces for a kiln are constructed in the walls thereof, as shown; but obviously the furnaces may extend forwardly beyond the walls, if desired, especially if the walls are unusually narrow. Each furnace comprises two opposing side walls C and C', the lower portions of which are vertical and the upper portions leaned over and joined as an arch D, extending from the front *a* inwardly to a low transverse wall E, extending from the wall C to the wall C' and from the inner face *b* of the kiln-walls inwardly into the furnace a suitable distance. Opposing walls F and F' are built upon the wall E against the walls C and C', leaving a space between them, and a roof-wall G is built upon the walls F and F', extending from the walls C and C' across the space and up to a junction with the kiln-wall at the top of the arch D, thus providing a restricted throat I between the furnace and the plane of the inner face of the kiln, the throat having an orifice J, opposite to which the temporary arch of unburned bricks is to be set up, with the bottom of the kiln as a base corresponding to the plane of the bottom of the furnace, (indicated at H.) Practically, as will be understood, the walls E F F' G are built as a single integral wall, with the throat opening therein, and composed, preferably, of fire-bricks joined to the kiln-wall. The sides and arch of the furnace also may be composed of fire-bricks. Above the furnace a peep-hole K is formed in the kiln-wall, as usual. A narrow baffle-wall L of suitable height is built upon the bottom of the furnace midway between the walls C and C' and rather nearer to the front *a* than the rear of the furnace before the throat I, and it may be perpendicular or it may lean slightly toward the throat, as indicated in Fig. 3.

The burners for the furnaces may be of any suitable type, in the present case the end *d* of a pipe M being considered as a burner, the pipe having a mixer N connected thereto and in connection with a supply-pipe O. The



burner is situated before the wall L at a suitable distance therefrom and a short distance within the furnace near the front thereof. A suitable furnace-front may be employed when  
5 desired.

In practical use the flames at the burner will extend to the baffle-wall L and spread out so as to fill the furnace, passing about the sides and over the top of the baffle-wall, thus heating all the air that combines with the flames,  
10 the resultant hot and burning gases passing through the throat I into the temporary arches within the kiln, where further and more complete combustion takes place, the heat being  
15 drawn up through the kiln in the usual manner naturally. The heat thus utilized will be gradual in application and uniform and well distributed, while cold drafts will be prevented, effecting a great economy of fuel and  
20 without requiring great gas-pressure.

While I do not wish to be bound by the statement as to proportions, I may say that in my present practice each furnace is twelve inches wide and fourteen inches high. The  
25 throat I is five inches wide and seven inches high and four inches above the floor of the kiln, giving good results, although further experience may indicate somewhat different dimensions.

30 Having thus described my invention, what I claim as new is—

1. A brick-kiln including a wall having recesses in the outer portion thereof extending upwardly from the floor of the kiln and having  
35 uniform area from the front to the rear

thereof, there being openings at the rear of the recesses in the inner portion of the wall, and a narrow baffle-wall in each of said recesses extending upwardly from the floor-line of the kiln independent of said wall, in combination with a gas-burner having the outlet-orifice thereof opposite to the front of said baffle-wall. 40

2. In a furnace for brick-kilns, the combination of the wall having the arched recesses forming the furnaces in the outer portion thereof and the openings in the inner portion thereof, the gas-burners at the bottoms of said recesses having the outlet-orifices thereof disposed opposite the inner portions of said wall  
50 below said openings, and the narrow baffle-walls extending upwardly from the floor-line of the kiln opposite said orifices of said burners, said baffle-walls having passages at both sides thereof. 55

3. In a furnace for brick-kilns, the combination of the wall having the arched recesses forming the furnaces in the outer portion thereof and the openings in the inner portion thereof, and the gas-burners at the bottoms  
60 of said recesses having the outlet-orifices thereof opposite and directed toward the inner portions of said wall below said openings, substantially as set forth.

In testimony whereof I affix my signature  
65 in presence of two witnesses.

ELI MELVIN CLARK.

Witnesses:

ERNEST MAYO,  
R. DEVANEY.