

No. 886,837.

PATENTED MAY 5, 1908.

R. H. MOLER.
LIMEKILN.

APPLICATION FILED MAR. 4, 1908.

FIG. 1.

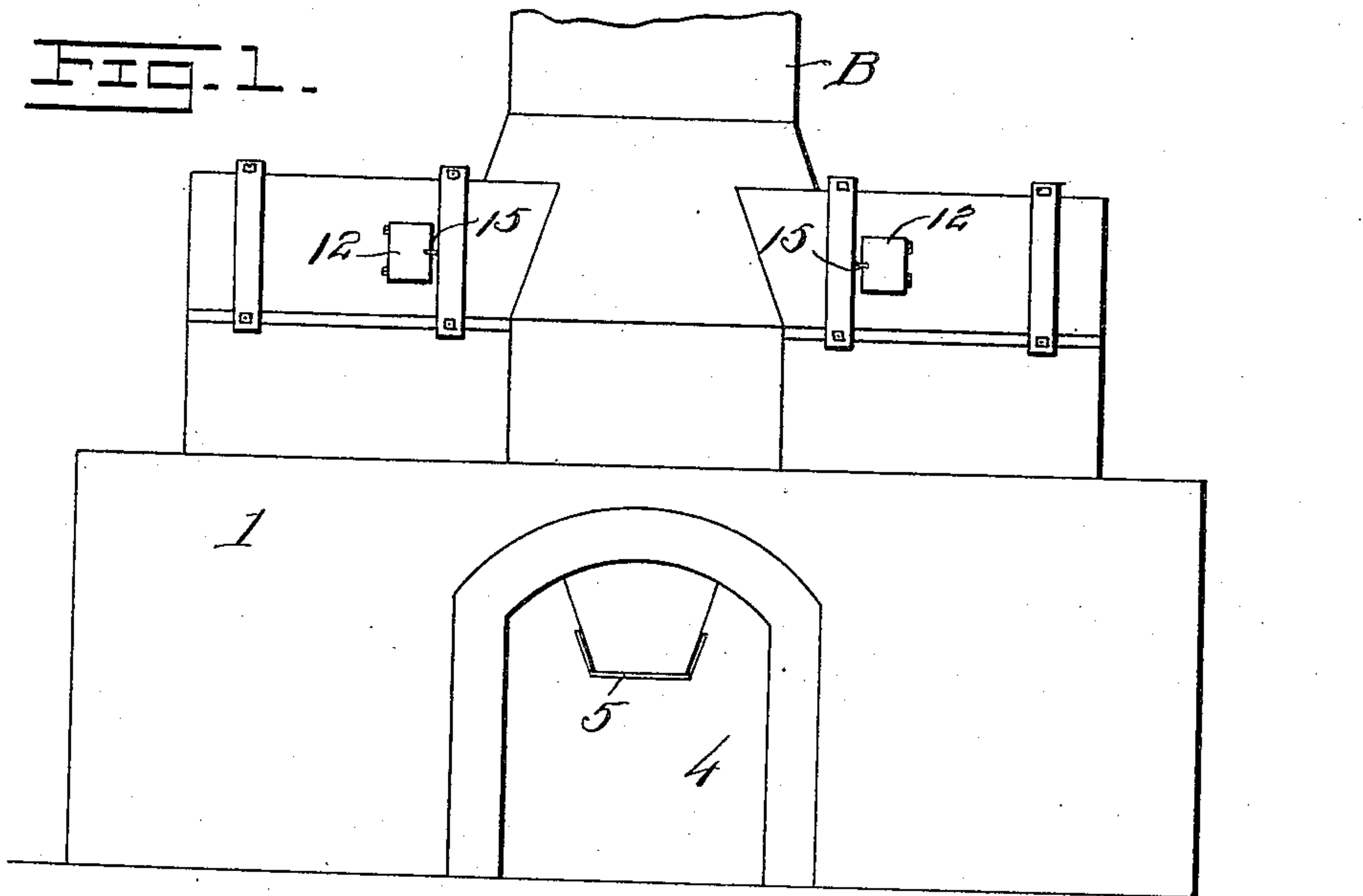


FIG. 2.

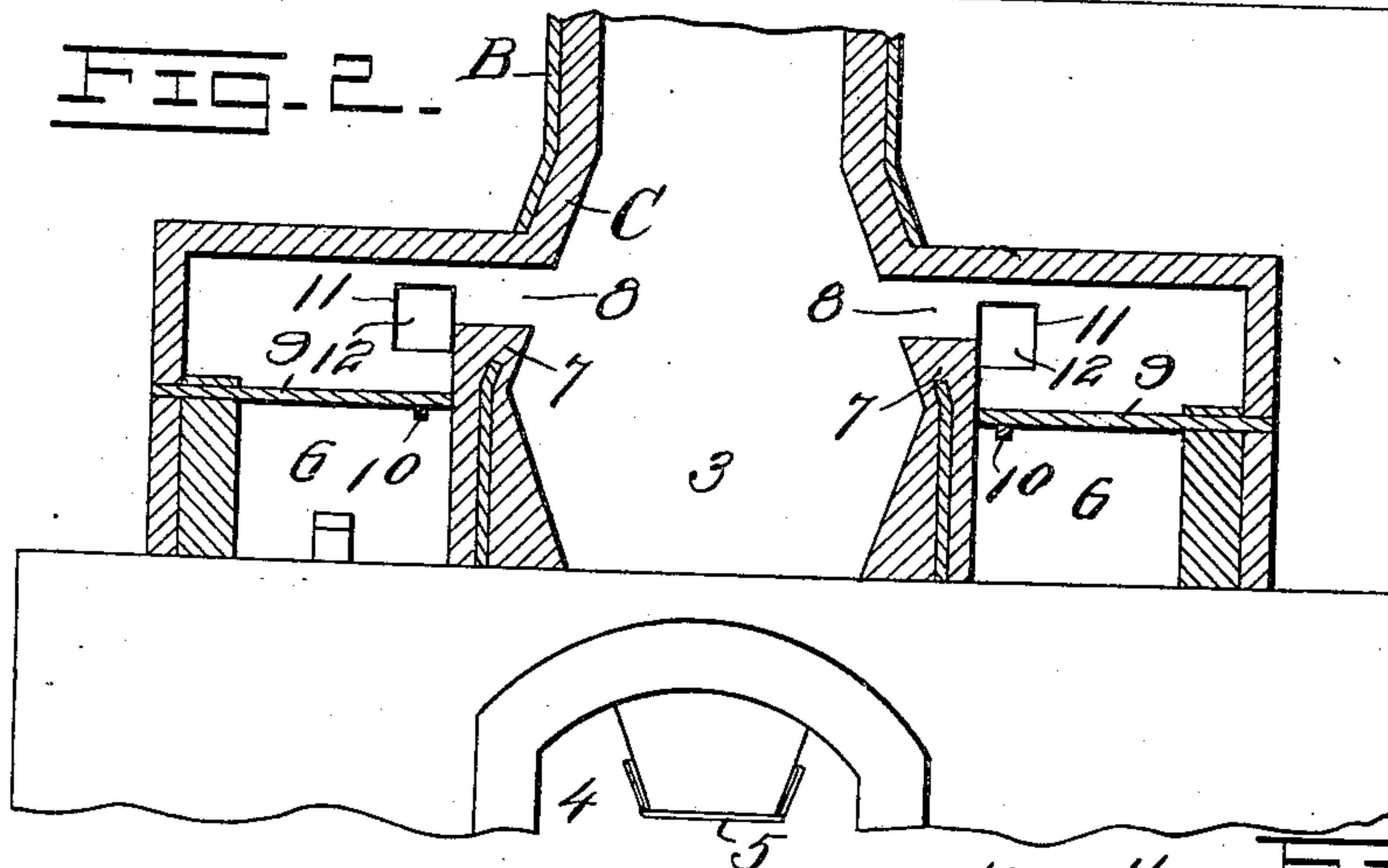


FIG. 3.

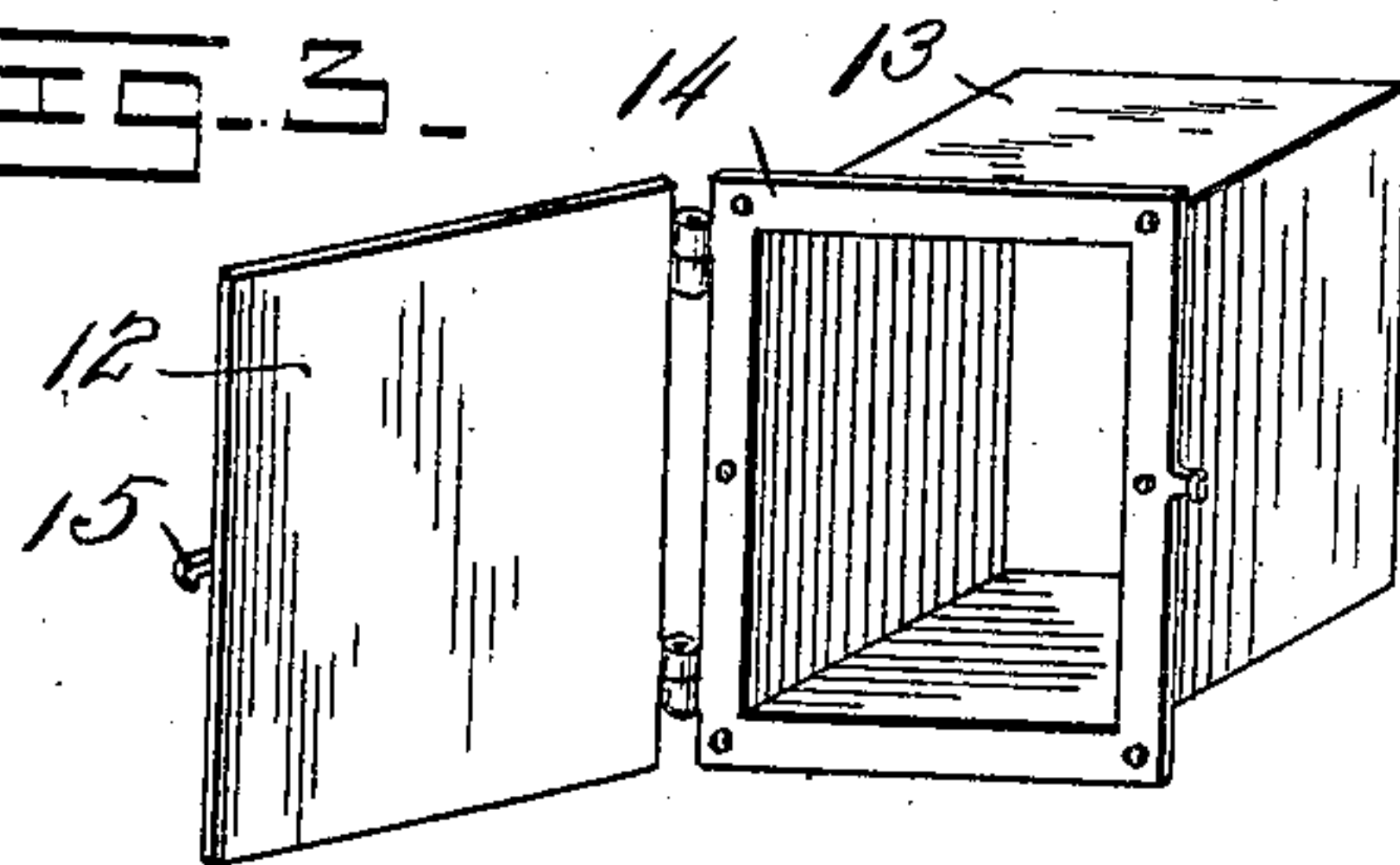
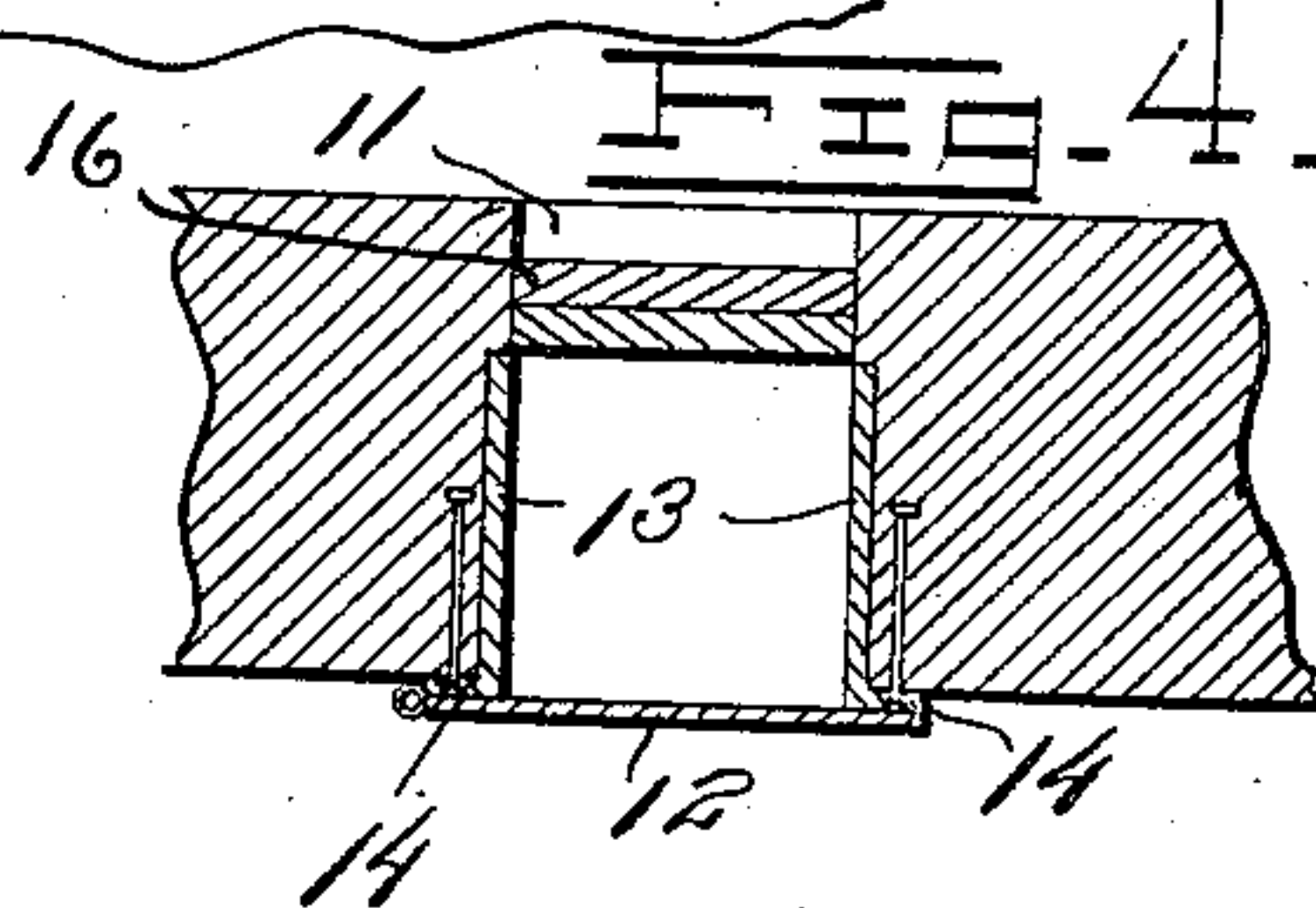


FIG. 4.



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UNITED STATES PATENT OFFICE.

RALEIGH H. MOLER, OF WASHINGTON, DISTRICT OF COLUMBIA.

LIMEKILN.

No. 886,837.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed March 4, 1908. Serial No 419,214.

To all whom it may concern:

Be it known that I, RALEIGH H. MOLER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Limekilns, of which the following is a specification.

The majority, if not all, types of lime kilns have a bridge wall at the rear of the furnace, for obvious reasons. Owing to the intense heat necessary in successfully operating a lime kiln, a large amount of slag or clinker forms on or near the bridges wall, which grows to such large proportions as to materially decrease the draft and deaden the fire in the furnace. It is extremely difficult to dislodge the clinkers from the bridge wall, owing to the fact that the glare and heat of the fire is too intense to permit an operator to stand for any considerable length of time in front of the open furnace door; besides which the temperature of the furnace is materially reduced when the furnace door is kept open for any length of time, owing to the admission of a surplus of cold air. These defects materially reduce the output of the kiln.

The object of my invention is to provide an opening through one of the side walls of the furnace in front of the bridge wall, whereby the operator may readily clean the bridge wall and the furnace of clinkers and slag which accumulates at the rear of the furnace without being subjected to intense heat, and at the same time prevent the admission of an undue amount of cold air into the furnace, and with these and minor objects in view, my invention consists of the parts, and combination of parts, as will be more fully hereinafter set out.

In the drawing:—Figure 1 is a side elevation of a kiln, with my invention embodied; and Fig. 2 is a vertical central section on the line 2—2.

1 represents the base or foundation of the kiln, B is a suitable shell of metal of any desired shape, which is lined with fire brick C. The lower end of the cupola is funnel shaped, and connects with the throat 3 which extends down through the foundation into the receiving or cooling arch 4. The throat 3 is provided with a suitable cut-off valve 5 which permits the lime to escape through the throat at intervals.

6 are the furnaces attached to or formed with the kiln and lined with suitable fire brick.

7 are bridge walls of fire brick between the furnaces and the cupola above which are openings 8 communicating with the cupola.

9 are grate bars formed of loose wrought iron bars which rest upon supports 10. These bars may be drawn out singly when it is desired to clean the furnace or to insert a new bar.

11 is an opening formed in the furnace side wall; said opening being provided with a suitable closure. This opening is positioned immediately in front of the bridge wall of the furnace.

When it is desired to clean the rear of the furnace and the bridge wall of slag and clinkers, one or more of the grate bars are drawn out a suitable distance, in which position each is supported by its bearing in the front wall of the furnace and on the support 10. The closure 12 of the opening 11 is then removed, whereupon the operator, by a suitable implement, pushes the clinkers off of the grate bars at the rear of the furnace, through the opening formed by the withdrawal of the grate bar and chisels the slag and clinker from the bridge wall, whereupon the clinker or slag falls through the opening formed by the withdrawal of the grate bars. This operation is accomplished without subjecting the operator to the intense heat of the furnace and without introducing an unnecessary surplus of cold air into the furnace, which results in materially reducing the temperature of the furnace with a resultant reduction of temperature in the cupola, which results in chilling the lime stone to a certain extent. Chilling of the lime stone at certain stages of its burning results in unevenly burned stone.

By actual experiment, it has been found that a kiln capable of producing 60 barrels of lime per day will, when provided with the opening 11 in its side, produce at least 80 barrels per day, which is a very material item to the manufacturer. Not only does this opening in the side wall of the kiln increase its capacity, but it results in the production of better lime, that is to say, evenly burned lime.

While I have shown and described my invention as applied to a lime kiln, it will of course be understood that it may be applied with equal advantage to any furnace.

The closure comprises a box 13 of suitable diameter having a face flange 14, to which the closure 12 is hinged. 15 is a suitable lock or hasp by means of which the closure is retained in its closed position. In order to protect the box 13 from the intense heat of the kiln, I insert brick or tile 16 in the opening through the wall of the kiln between the fire box and the edge of the box 13. These fire brick or tile are of such diameter that they may be readily drawn through the box 13 so as to leave the opening through the wall unobstructed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. The combination with a furnace, with

an opening in the side wall thereof above the grate bars and a closure for said opening.

2. The combination with a furnace having a bridge wall, of an opening in the side wall of said furnace in front of the bridge wall, and a closure for said opening.

3. The combination with a furnace having a bridge wall and slidable grate bars, of an opening in the side wall of the furnace in front of said bridge wall, and a closure for said opening.

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

RALEIGH H. MOLER.

Witnesses:

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