

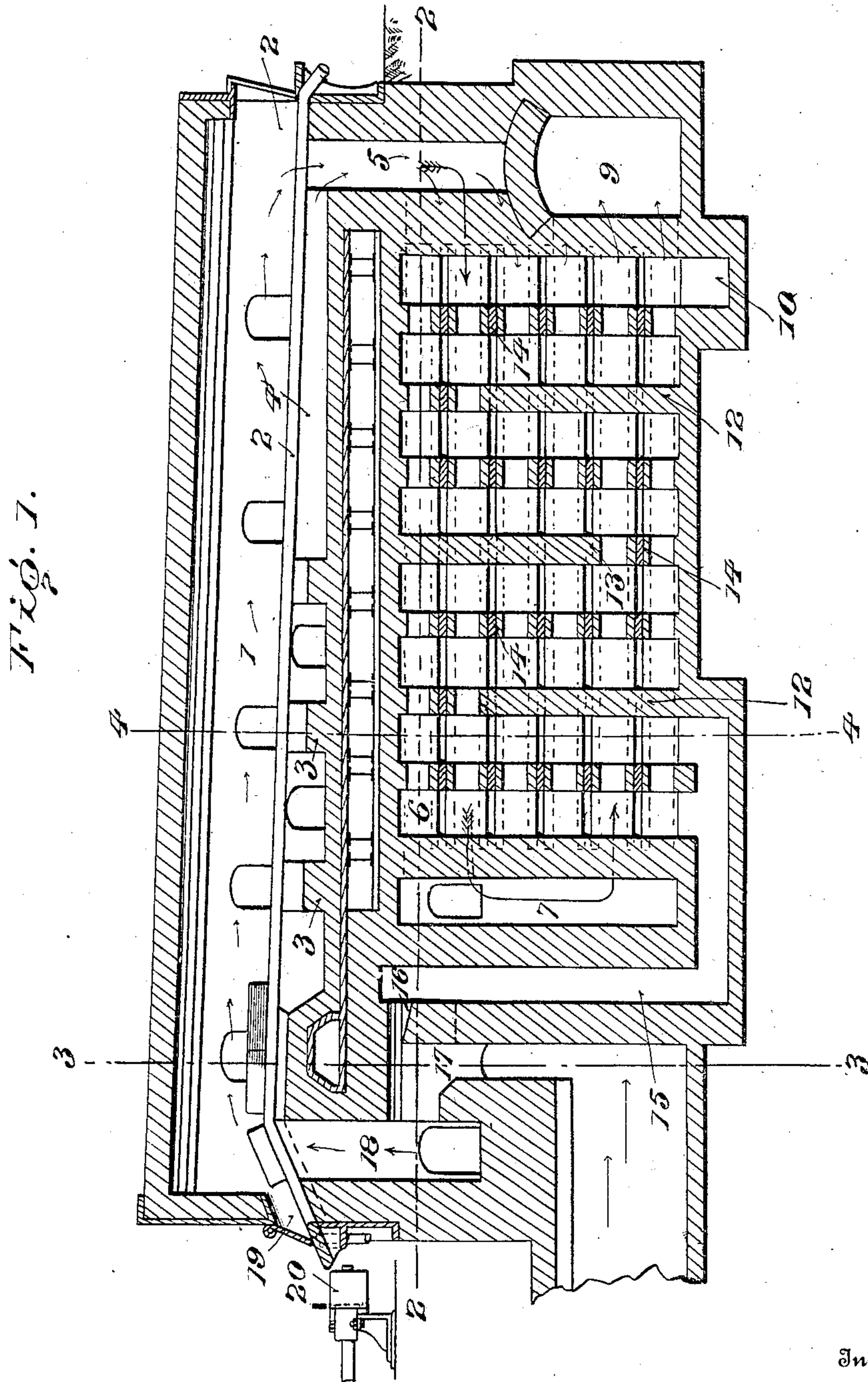
No. 875,459.

PATENTED DEC. 31, 1907.

J. REULEAUX.
CONTINUOUS HEATING FURNACE.

APPLICATION FILED FEB. 27, 1907.

2 SHEETS—SHEET 1.



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Witnesses

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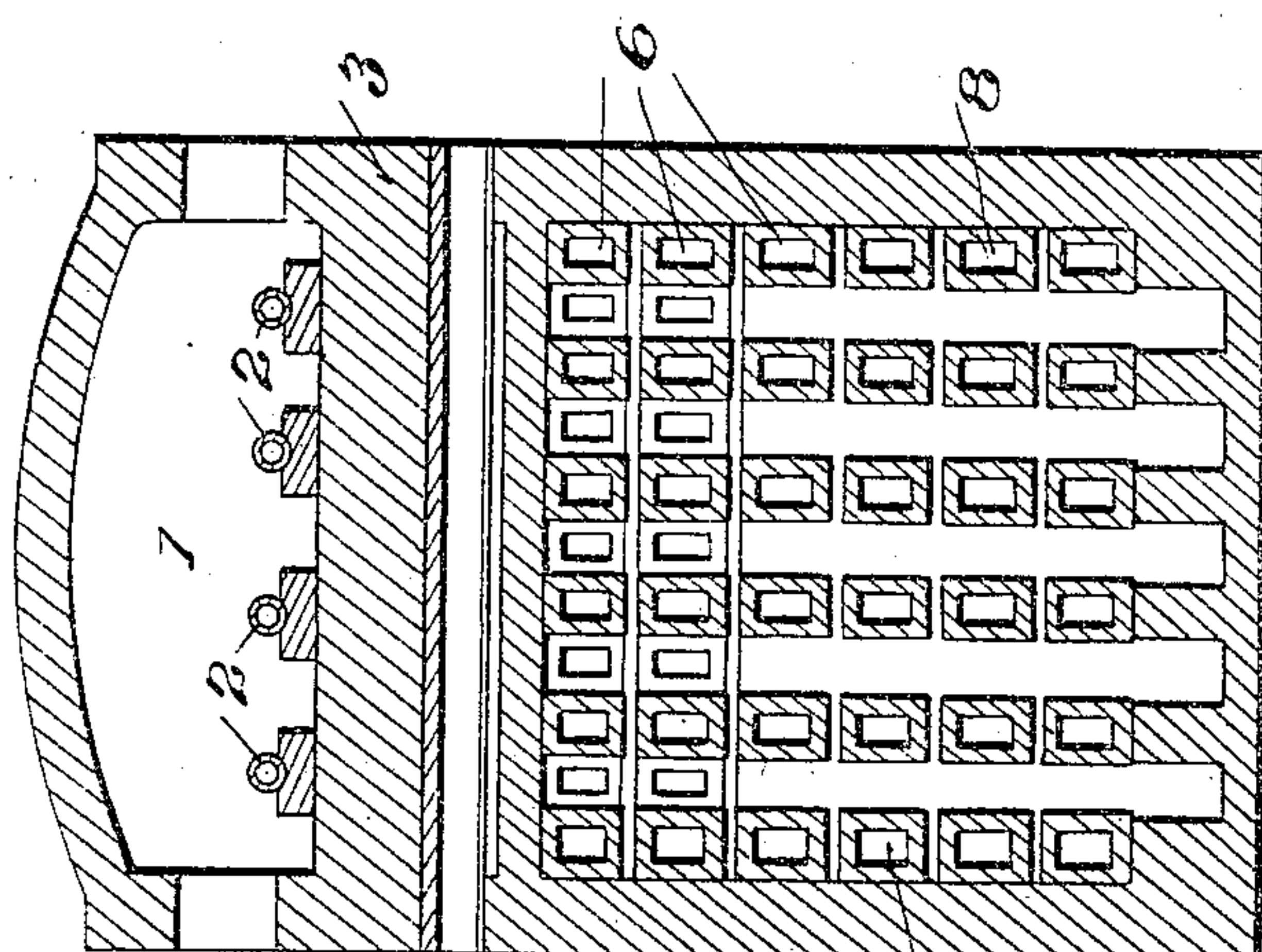


Fig. 14.

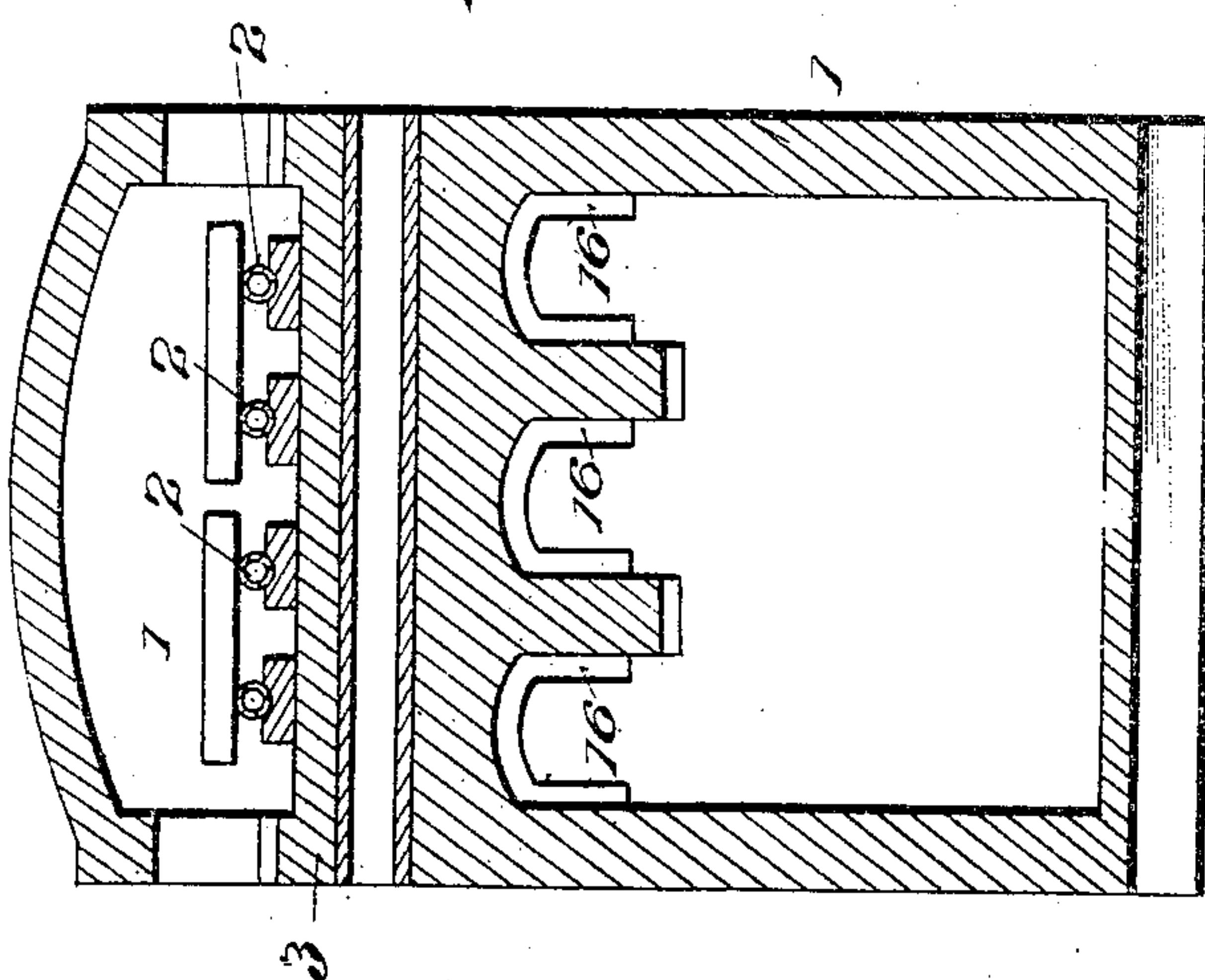


Fig. 3.

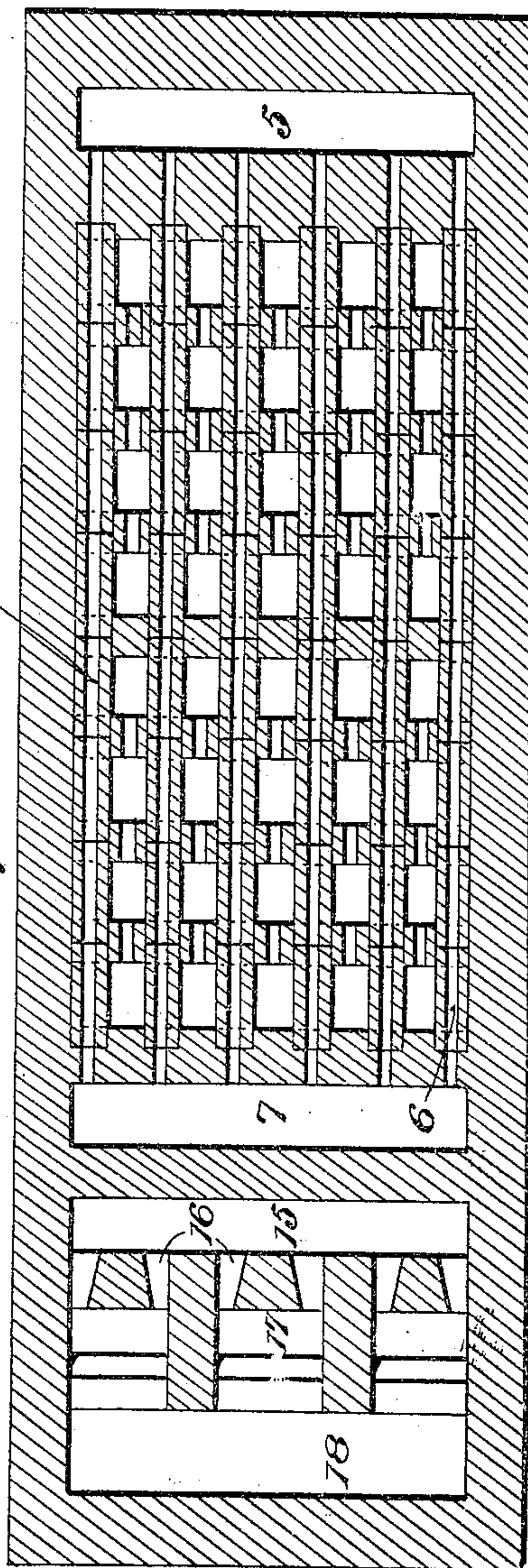


Fig. 2.

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JOSEF REULEAUX, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO ALEXANDER LAUGHLIN, OF PITTSBURG, PENNSYLVANIA.

CONTINUOUS HEATING-FURNACE.

No. 875,459.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Original application filed October 5, 1906, Serial No. 337,592. Divided and this application filed February 27, 1907.
Serial No. 359,615.

To all whom it may concern:

Be it known that I, JOSEF REULEAUX, of Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Continuous Heating-Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is to utilize practically all the heat of the waste gases for heating the air before it enters the heating chamber.

A further object is to effect a thorough intermingling of the heated air and gas at a point somewhat remote from their entrance to the heating chamber.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a furnace embodying my improvements. Fig. 2 is a horizontal sectional view on line 2—2, Fig. 1. Fig. 3 is a cross sectional view on line 3—3, Fig. 1. Fig. 4 is a similar view on line 4—4, same figure.

Referring to the drawings, 1 designates the heating or combustion chamber; 2 the longitudinally extended supports; 3 the transverse piers, and 4 the longitudinal piers upon which the supports 2 are mounted. The waste gases or products of combustion upon reaching the far or receiving end of the furnace pass downwardly into a waste-gas chamber 5, and thence through a series of conduits 6 to the discharge end of the furnace, where they enter a return chamber 7, and from there travel, back upon themselves, through a second, or lower, series of conduits 8 leading to the stack or outlet flue 9. The two series of conduits, 6 and 8, are located in the air-heating chamber into which air is introduced through ports 10, one of which is shown in Fig. 1 as being adjacent to the receiving end of the furnace. The air upon entering this chamber is caused to travel tortuously over and beneath vertically disposed partitions 12 and 13. The several superposed rows of conduits 6 and 8 are spaced apart by blocks 14 to permit of a thorough circulation of the air around the several conduits. The air being thus pre-

heated passes into a chamber 15, and from the latter through lateral openings 16 into the gas-supply chamber 17, which latter opens laterally into the fuel port 18. The air and gas are thus brought together at a point distant from the point of combustion so that they will be thoroughly intermingled before entering the fuel port. In this way the highest heat is obtained at the point of entrance of the gases into the heating chamber. This is of special importance in connection with a furnace constructed with means for quickly moving the slabs or billets past the point of highest heat, and out of the furnace, after the manner contemplated by the invention covered by reissued Letters Patent No. 11,666, of May 31, 1898.

I have shown the billet supports as bridged over the fuel port 18 on an incline so that the billets as they pass over the point of highest heat will be automatically discharged through the door-covered opening 19, and onto a conveyor 20, all as pointed out in said patent.

It will be understood that the slabs or billets are introduced into the heating chamber at the receiving end 21, and are gradually forced therethrough, upon the supports 2, by any suitable mechanism, not shown. As they reach the point of highest heat, each will in its turn be automatically discharged as it passes through the maximum heating zone.

I claim as my invention:—

1. In a continuous-heating furnace having its point of highest heat at or near one end of its combustion chamber, a fuel-port opening directly into said chamber at such end, a gas-supply chamber at one side of said fuel-port and into which it opens laterally, an air-heating chamber, and a chamber leading therefrom and opening laterally into said gas-supply chamber, the air and gas being thoroughly intermingled before entering the fuel-port.

2. In a continuous-heating furnace having a combustion chamber extending longitudinally thereof, and a fuel-port opening directly into said chamber at or near its discharge end, an air-heating chamber located beneath said combustion chamber, a waste-gas chamber at the receiving end of the furnace leading from the combustion chamber to the air-heating chamber, a stack-flue also at the receiving-end of the furnace, a series of conduits leading from the waste-gas chamber through said air-heating chamber, a chamber

near the discharge end of the furnace into which said conduits open, a second series of conduits leading from said latter chamber to said stack-flue, said air-heating chamber
5 having inlet ports at or near the receiving-end of the furnace, a hot-air chamber into which said air-heating chamber opens, and a gas-supply chamber into which the hot-air chamber opens laterally, said gas-supply

chamber being at one side of said fuel-port 10 and opening laterally thereinto.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

JOSEF REULEAUX.

Witnesses:

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A. J. CLARKE.