

No. 640,144.

Patented Dec. 26, 1899.

W. C. MITCHELL.
FURNACE FOR KILNS OR BOILERS.

(Application filed Feb. 15, 1899.)

(No Model.)

Fig. I.

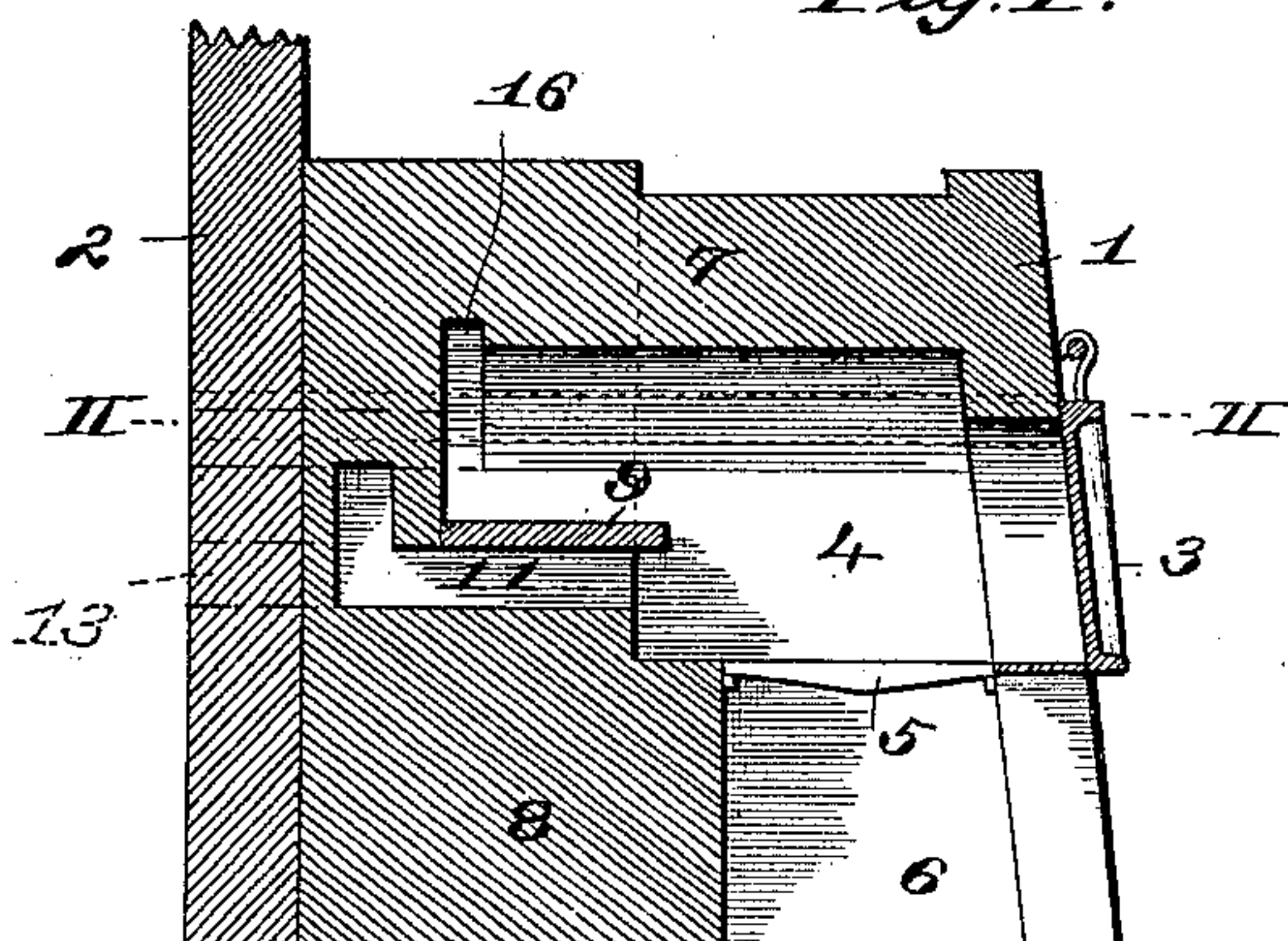


Fig. II.

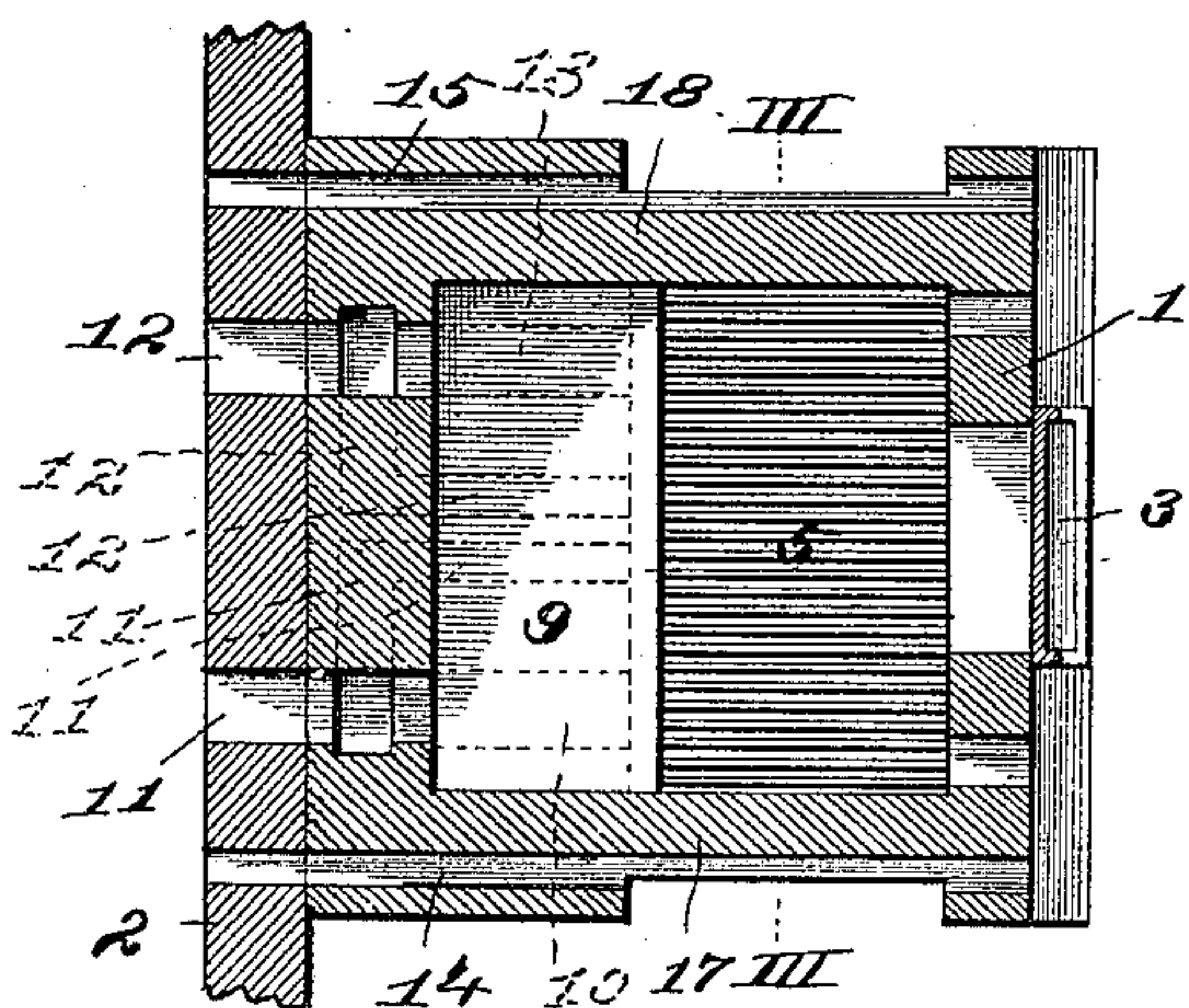


Fig. III.

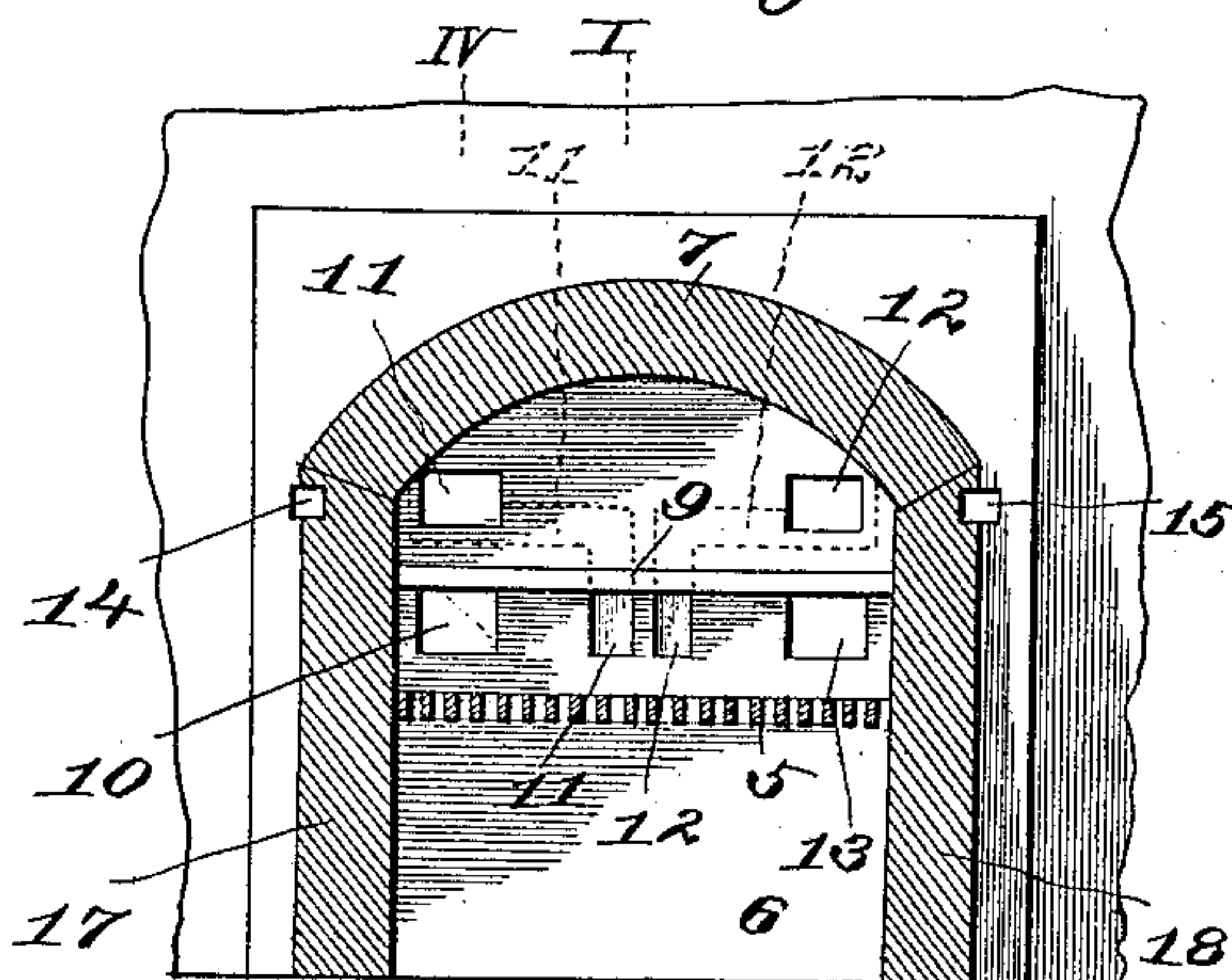
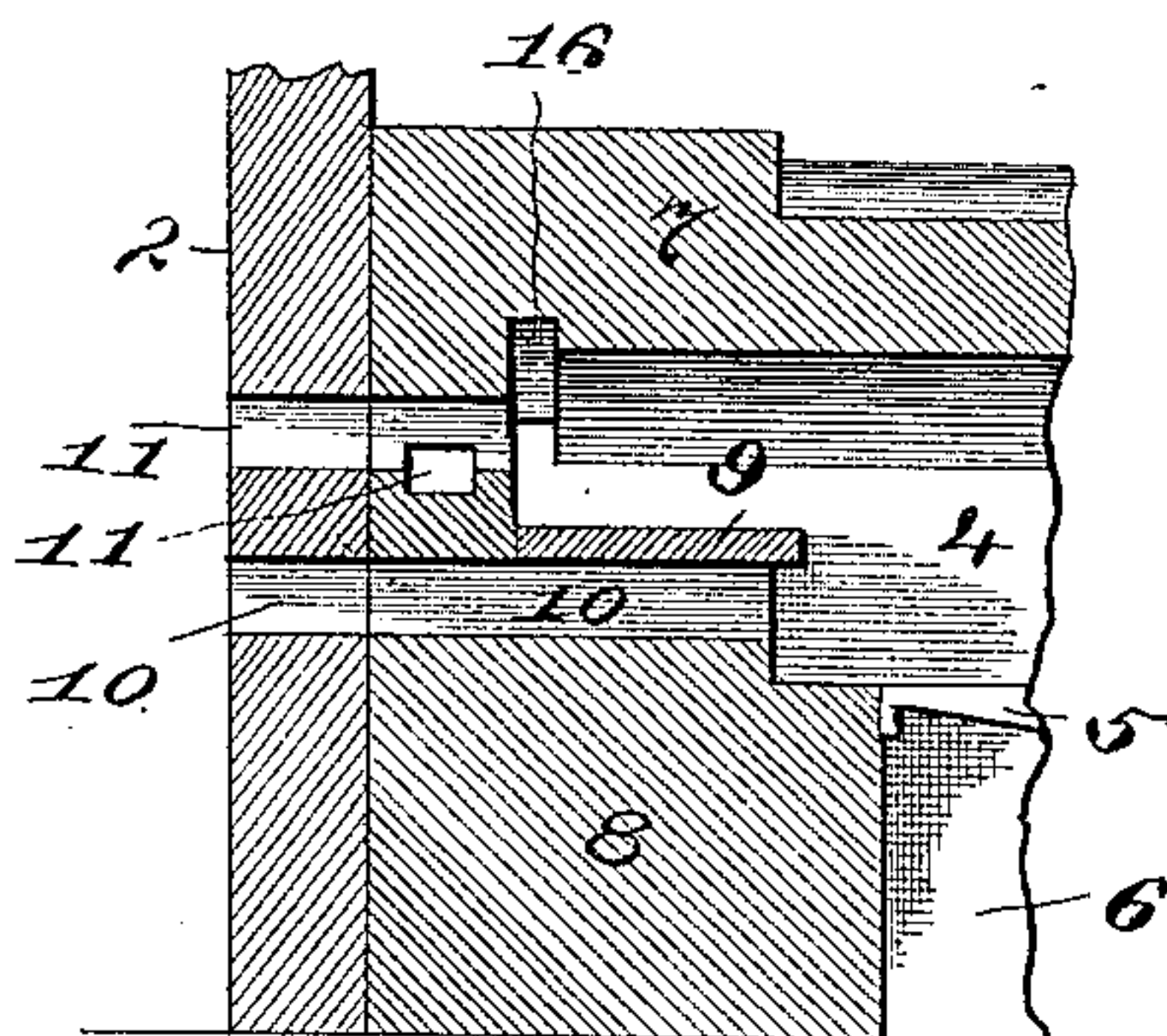


Fig. IV.



Witnesses —

G. A. Pauberschmidt,
E. J. Krigh

Inventor —

W. C. Mitchell,
By Krigh Bros.
Attorneys.

UNITED STATES PATENT OFFICE.

WALTER C. MITCHELL, OF MONTEZUMA, INDIANA, ASSIGNOR TO WALTER P. GRATH, OF ST. LOUIS, MISSOURI.

FURNACE FOR KILNS OR BOILERS.

SPECIFICATION forming part of Letters Patent No. 640,144, dated December 26, 1899.

Application filed February 15, 1899. Serial No. 705,538. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. MITCHELL, a citizen of the United States, residing at Montezuma, in the county of Parke and State of Indiana, have invented a certain new and useful Improvement in Furnaces for Kilns or Boilers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to furnaces for use in connection with kilns or steam-boilers, in which it is designed to utilize slack coal as a fuel, the furnace embodying a construction in which there is a coking-table located in the rear of the furnace-grate, around and over which there are passages to conduct the heat from the combustion of fuel on the furnace-grate, so that the slack coal lying on the coking-table may be thoroughly heated to coke it before it is deposited on the grate to be consumed.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I shows a vertical longitudinal section of my improved furnace. Fig. II is a horizontal section taken along the line II II, Fig. I. Fig. III is a vertical cross-section taken along the line III III of Fig. II. Fig. IV is a vertical longitudinal section taken along the line IV IV, Fig. III.

1 and 2 respectively designate the front and back walls of the furnace. The front wall 1 is provided with a doorway that is closed by a door 3.

4 designates a combustion-chamber provided with a grate 5, and beneath the grate is the ash-pit 6.

7 is the top wall of the furnace, and 8 the base.

9 designates a coking-table located in the rear of the combustion-chamber 4, onto which table slack coal may be thrown to be heated, so as to coke it preparatory to its being deposited on the grate 5.

10 and 13 designate ducts leading from the combustion-chamber 4 directly through the furnace beneath the coking-table 9 and opening into the kiln or boiler space back of the wall 2, so that the air passing through these ducts is imparted to the coking-table 9 above them.

11 and 12 designate ducts passing from a

central location beneath the coking-table 55 from the combustion-chamber in a rearwardly and then an upwardly direction (see particularly Fig. III) and discharging into the space above the coking-table, so that the heat conducted through these ducts 11 and 12 affects 60 the coking-table and the slack coal lying thereon, both below the table and back of it, and is then discharged above the table to heat the slack at the top. The arrangement of these ducts enables me to obtain a complete 65 circulation and application of heat to all parts of the coking-table, so as to thoroughly coke the slack lying thereon. After the slack has been thoroughly coked it is drawn forward onto the grate 5, where it is consumed, 70 and fresh slack is placed on the coking-table to be coked in the same manner as the first.

14 and 15 designate fresh-air passages located in the side walls of the furnace, through which a supply of fresh air may be conducted 75 into the kiln or boiler chambers.

16 is a heat-retaining arch located at the rear of the combustion-chamber above the coking-table 9.

The side walls of the furnace are designated 80 by 17 and 18.

I claim as my invention—

1. A furnace comprising outer walls inclosing a grate and a combustion-chamber, and having a raised imperforate platform arranged under the roof of the combustion-chamber and extending horizontally from a wall thereof so that a mass thereon may be removed onto said grate, the ducts or channels beneath said platform being open to the 85 products of combustion, and the space above said platform being continuous with the combustion-chamber; substantially as described.

2. The combination, with a combustion-chamber, of a coking-table located at the 95 rear thereof, and passages adapted to conduct heated air beneath, behind and above said table, substantially as described.

3. The combination, in a furnace, of a combustion-chamber, a coking-table, passages 100 leading beneath, behind and above said table, and passages leading through the rear wall of said furnace, substantially as described.

WALTER C. MITCHELL.

In presence of—

HENRY L. KNAPP,
H. B. GRIFFITH.