(No Model.) 2 Sheets—Sheet 1.

D. J. MURNANE & L. J. TRECY.

HOT AIR FURNACE.

No. 457,003. Patented Aug. 4, 1891.

Fig. I.

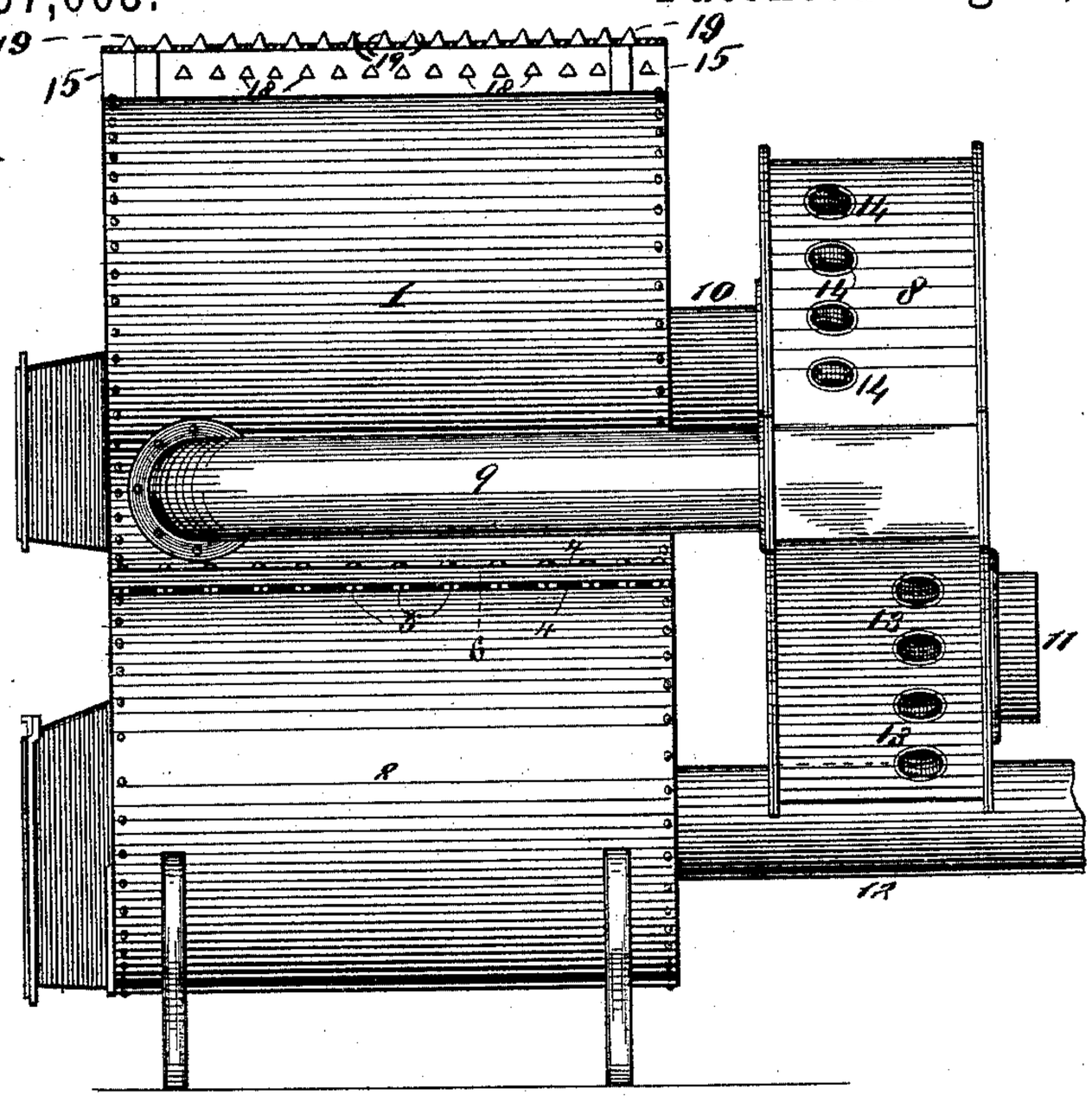
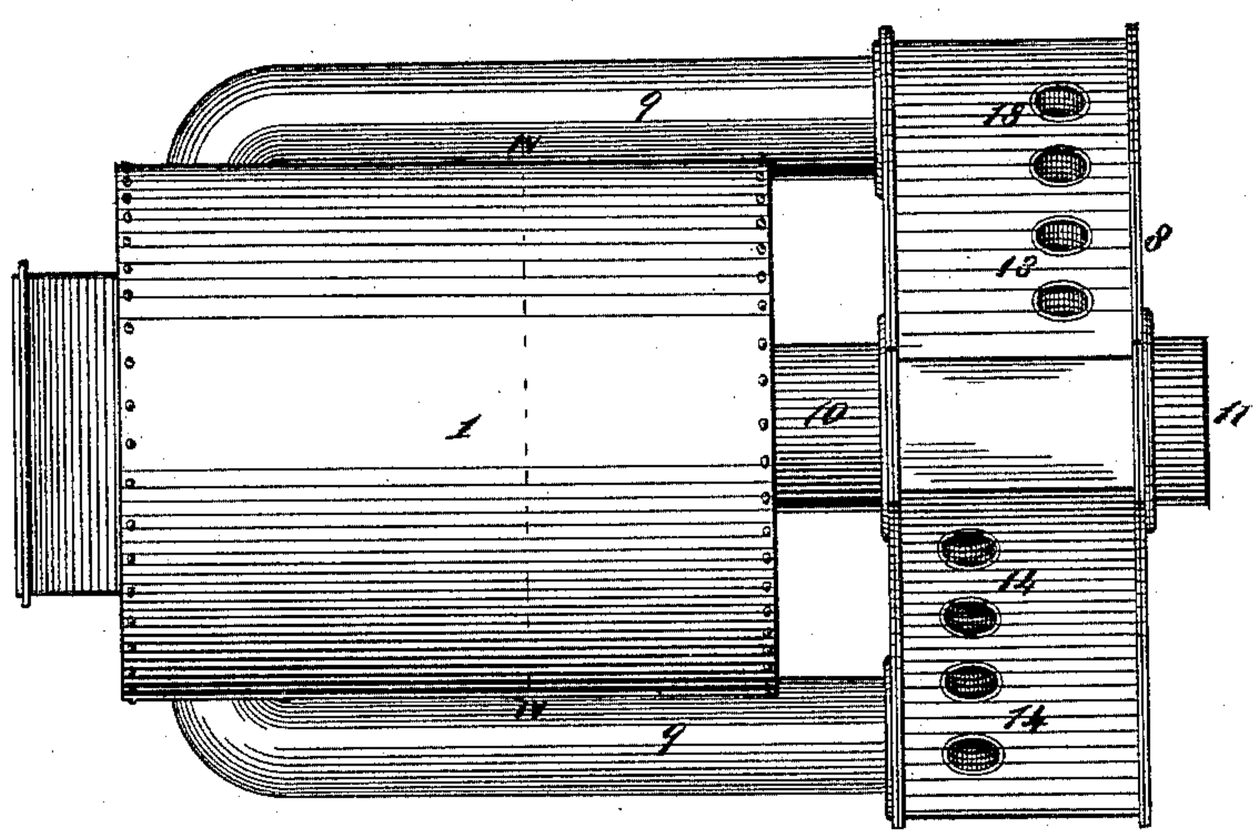


Fig. II.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. III.

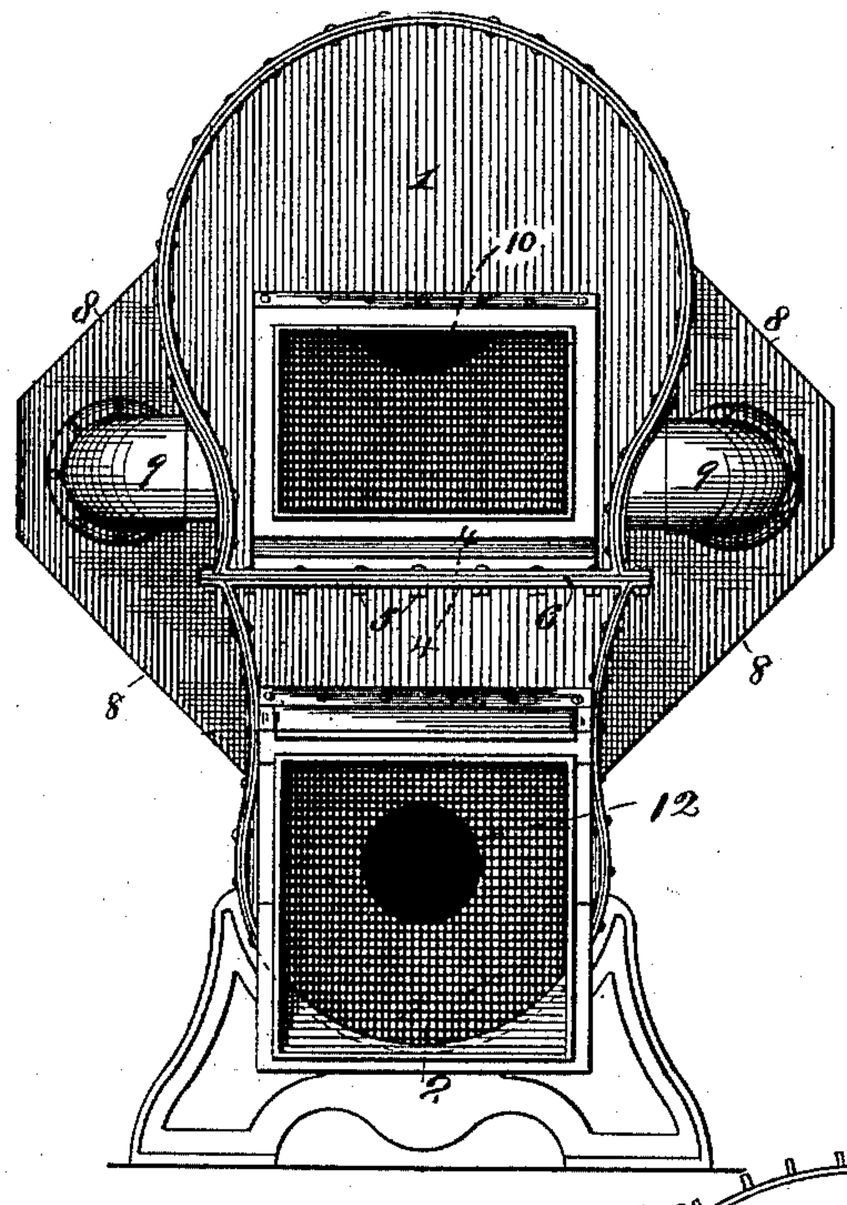


Fig. IV.

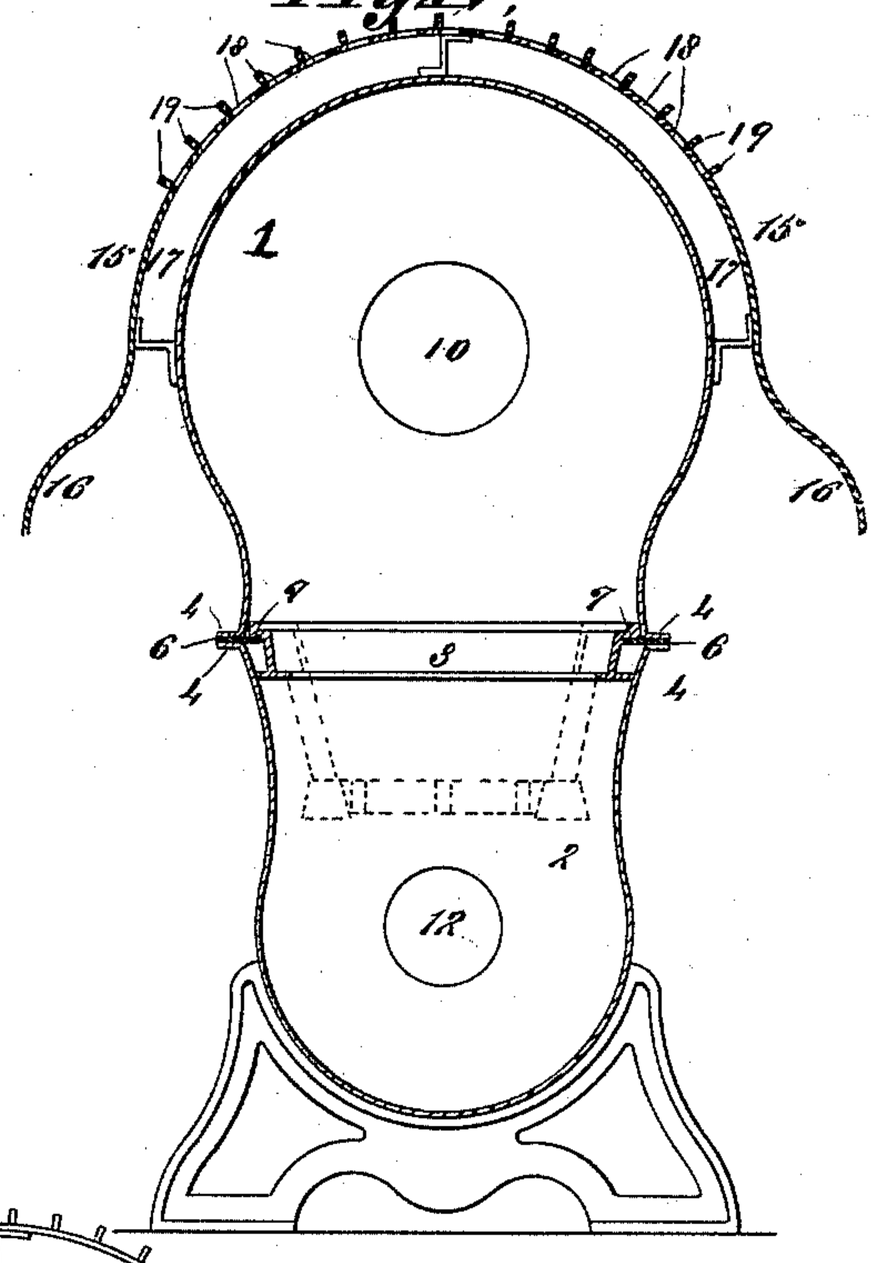
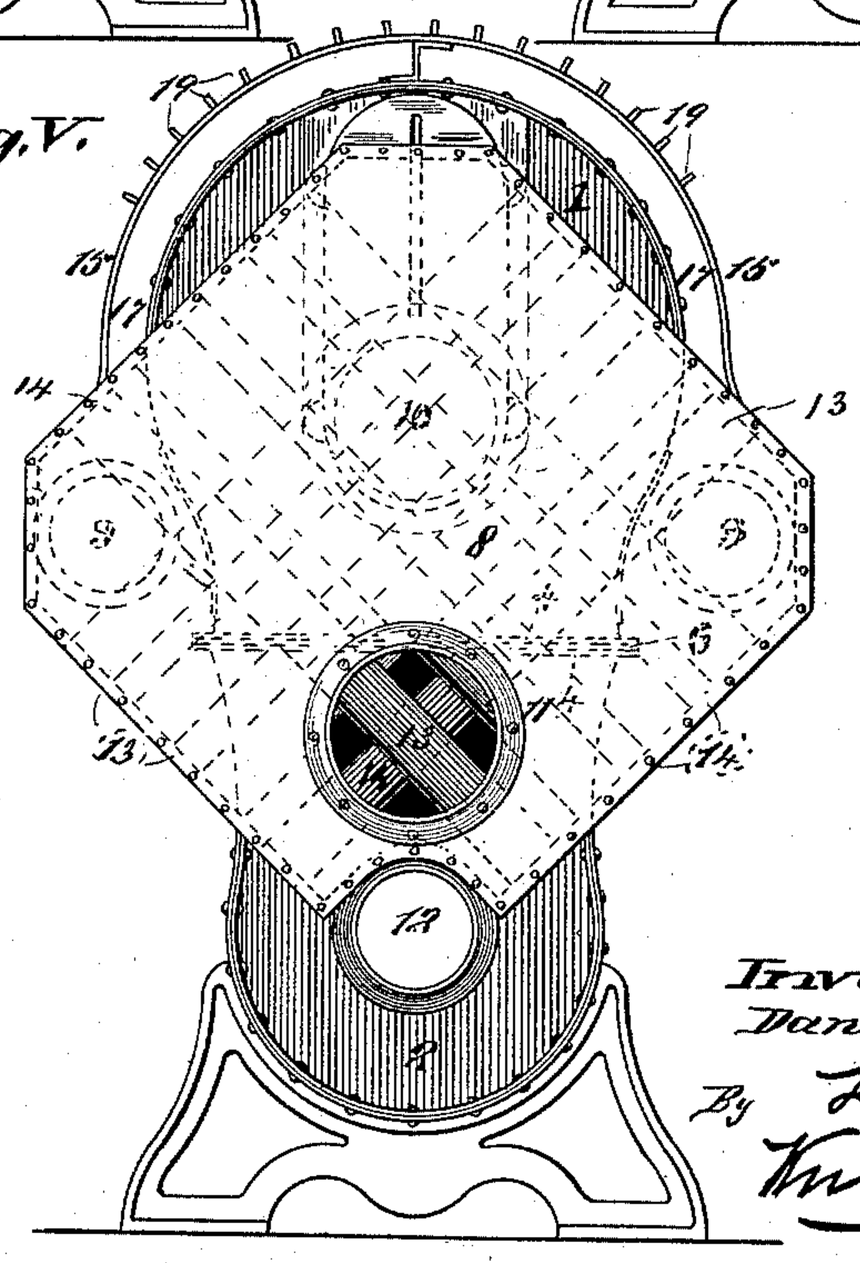


Fig. V.



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UNITED STATES PATENT OFFICE.

DANIEL J. MURNANE AND LAURENCE J. TRECY, OF ST. LOUIS, MISSOURI, ASSIGNORS TO THE CHAMPION HEATING AND VENTILATING COMPANY, OF SAME PLACE.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 457,003, dated August 4, 1891.

Application filed August 2, 1890. Serial No. 360,782. (No model.)

To all whom it may concern:

Be it known that we, DANIEL J. MURNANE and LAURENCE J. TRECY, both of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Hot-Air Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to an improved form of furnace for use in heating buildings, &c.; and our invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a side elevation of our improved furnace, the hood or covering being shown in section. Fig. II is a top view, the hood or covering being omitted. Fig. III is an elevation, the hood or covering being omitted. Fig. IV is a transverse section taken on line IV IV, Fig. II, the side flues and drum being omitted and showing the hood or covering. Fig. V is a rear elevation of the furnace.

1 represents the combustion-chamber of the furnace, surmounting a chamber 2, which forms the ash-pit and which receives a fire-basket 3. The walls of the chambers 1 and 2 are made separate, and secured together by means of outturned flanges 4, which are perforated to receive bolts or rivets 5. (See Figs I and III.)

Between the flanges 4 a plate 6 is placed, and which extends a short distance beyond the inner walls of the chambers, as shown at 7, Fig. IV. The object of this plate is to support the fire box or basket 3. The fire-basket is thus provided with a cheap and permanent support, which adds but little to the cost of the furnace.

8 represents a drum located behind the chambers 1 and 2, and communicating with the chamber 1 through means of side flues 9 and a rear flue 10. The heat and products of combustion are taken from the chamber 1, through the flues 9 and 10, into the drum 8, and after circulating through the drum pass to a chimney or uptake through a pipe or flue 11. The chamber 2 is preferably also connected with the chimney or uptake through a pipe 12. The drum 8 is preferably rectangular in shape, as shown in Fig. V, and passing through it are a number of diagonally-arranged flues 13 14, the flues 13 passing from one lower side of the drum to the opposite upper side and the flues 14 passing from the other lower side to the opposite upper side, as shown by dotted lines in Fig. V. The flues 13 and 14 are open at their ends and communicate with the chamber formed between the furnace, which we have shown and the ordinary brick or other setting or inclosure which is placed outside of the furnace which we have shown. The air from this chamber between the setting and the furnace proper passes through the flues and is heated before being conveyed to the rooms of the building in the usual manner. The air which passes over the front part of the furnace to the hot-air pipes, which convey it to the different rooms, is made to pass between the wall of the chamber 1 and a hood or covering 15, secured over the chamber 1, as shown in Figs. I, IV, and V. The lower ends of this hood are flared, as shown at 16, Fig. IV, to gather the air into the chamber 17 between the hood and the wall of the chamber 1. The hood is provided with a number of perforations or openings 18, through which the air escapes from the chamber 17, and these openings are preferably made by cutting the metal of the hood and bending the cut portions outwardly, forming projections 19, which become heated, and which in turn heat the air coming in contact with the air, thus increasing the heating capacity of the furnace without adding materially to its cost.

We claim as our invention—

1. In a hot-air furnace, the combination of the lower chamber 2, forming an ash-pit, having outturned perforated flanges 4 at the upper end, the combustion upper chamber 1, having outturned perforated flanges 4 at the lower end, the perforated intermediate plate 6, located between the flanges of the lower and upper chambers and projecting inward, fastenings by which the flanges and the plate are secured together, and a basket 5, supported on the plate within the latter, substantially as and for the purpose set forth.

2. In a hot-air furnace, the combination of the lower chamber 2, the upper chamber 1, se-

cured thereto, the rear drum 8, having diagonally-arranged crossed flues 13 14, the flues 9, extending from the sides of the upper chamber to the drum, the flue 10, extending from the rear of the upper chamber to the drum, the pipe 11, secured to the lower portion of the drum, substantially as and for the purpose set forth.

3. In a hot-air furnace, the combination of the lower chamber 2, a pipe 12, extending from the rear thereof, the upper chamber 1, secured to the lower chamber, the rear drum 8, having diagonally-arranged crossed flues 13 14, the flues 9, extending from the sides of the upper chamber to the drum, the flue 10, extending from the rear of the upper chamber to the drum, and the pipe 11, secured to the lower portion of the drum, substantially as and for the purpose set forth.

4. In a hot-air furnace, the hood or covering 15, having the perforations or openings 18 and projections 19, substantially as and for the purpose set forth.

5. In a hot-air furnace, the hood or covering 15, having a flared end 16 and the perforations 18 and projections 19, substantially as and for the purpose set forth.

DANIEL J. MURNANE.
LAURENCE J. TRECY.

In presence of—
E. S. KNIGHT,
A. M. EBERSOLE.