

(No Model.)

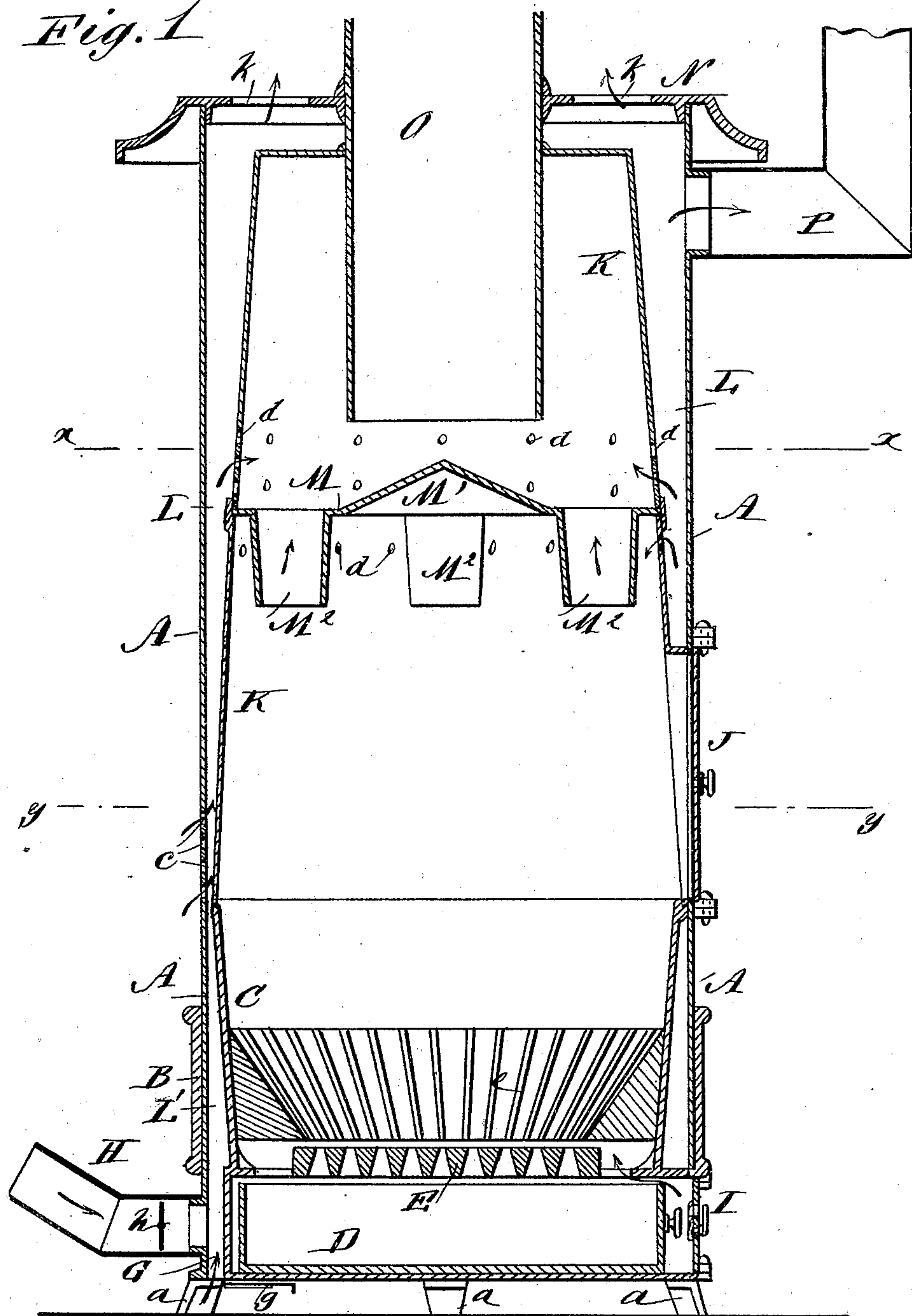
2 Sheets—Sheet 1.

B. F. PRICE.  
HOT AIR FURNACE.

No. 397,660.

Patented Feb. 12, 1889.

*Fig. 1*



WITNESSES:

C. Neveu  
Beddewick

**INVENTOR.**

L. F. Price

BY

Munn & Co

**ATTORNEYS.**

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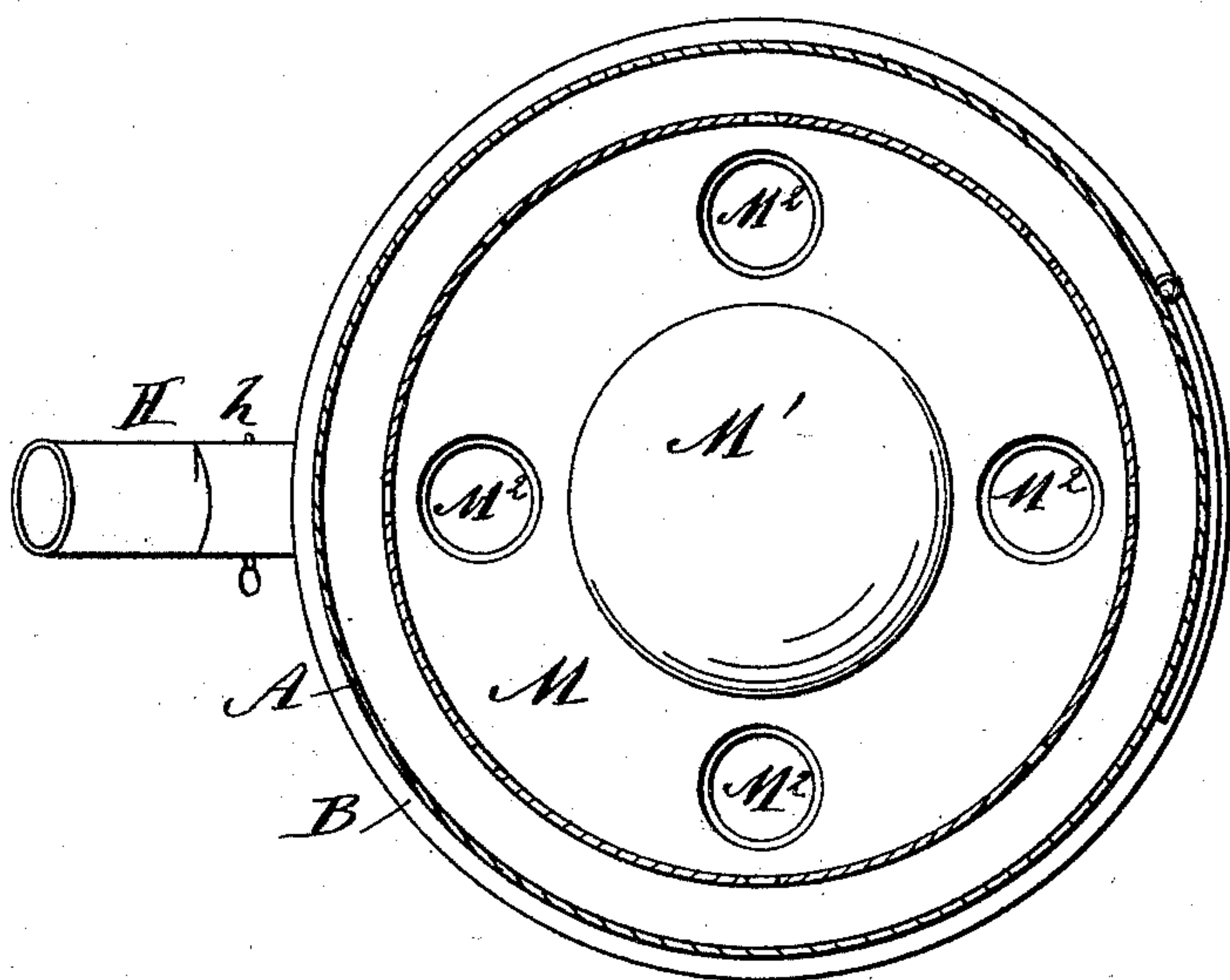


Fig. 2

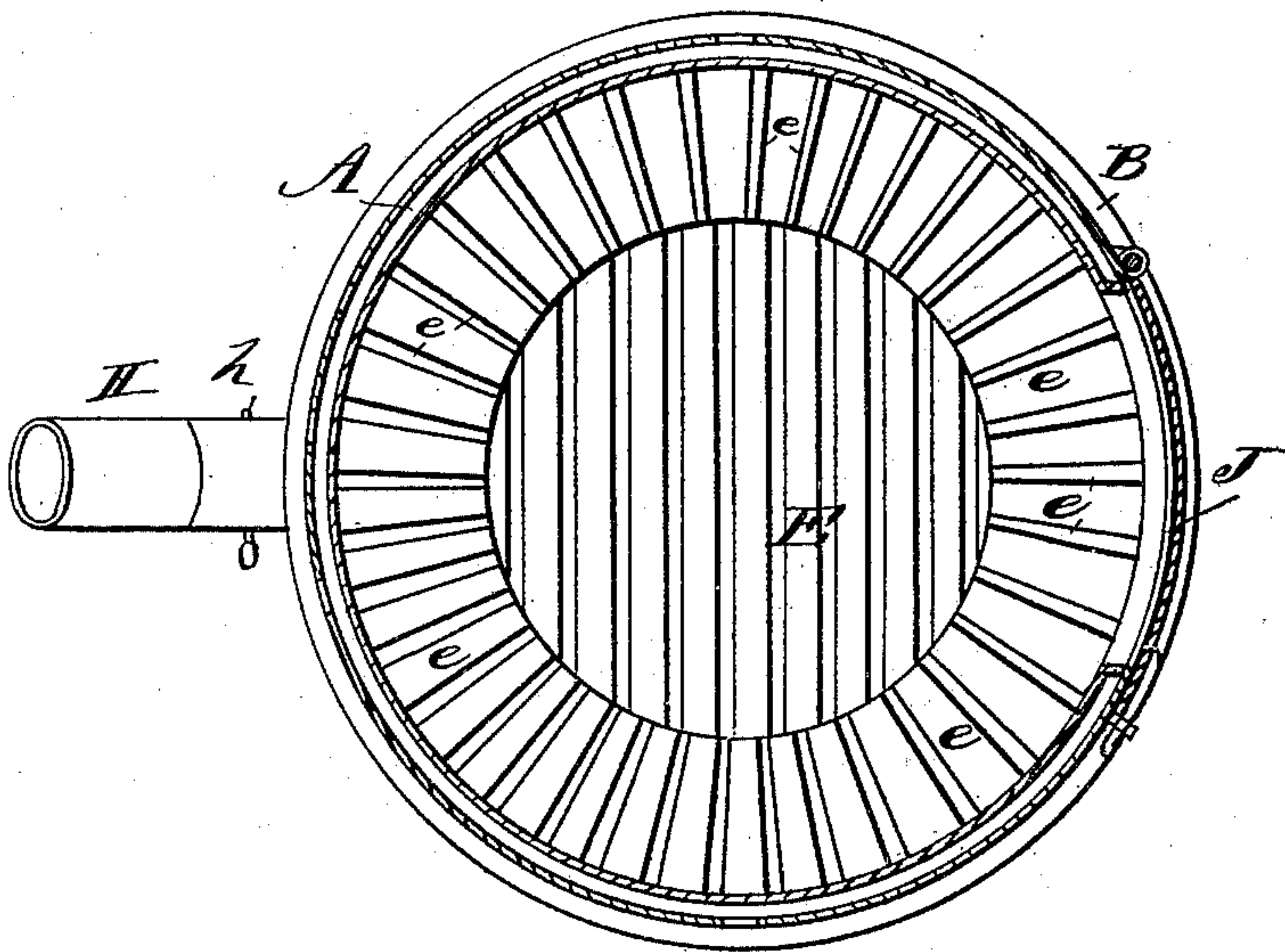


Fig. 3

WITNESSES:

*C. Neveu*  
*la Bedgwick*

INVENTOR.

*B. F. Price*

BY

*Munn & Co*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

BENJAMIN F. PRICE, OF BLOOMINGTON, ASSIGNOR OF ONE-HALF TO JOSEPH EWING PORTER, OF OTTAWA, ILLINOIS.

## HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 397,660, dated February 12, 1889.

Application filed May 7, 1888. Serial No. 273,134. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. PRICE, of Bloomington, in the county of McLean and State of Illinois, have invented a new and Improved Hot-Air Furnace, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical sectional elevation of my new and improved air-heating furnace or stove. Fig. 2 is a sectional plan view taken on the line *xx* of Fig. 1, and Fig. 3 is a sectional plan view taken on the line *yy* of Fig. 1.

The invention will first be described in connection with the drawings, and then pointed out in the claim.

A represents the main casing supported upon the legs *aa* and surrounded near the bottom by the ring B.

C is the fire-pot, D the ash-pan, E the grate, and *e* the projecting inclined knobs or ribs cast to the inside walls of the fire-pot C to support the fuel and relieve the grate of the weight of fuel and cause a surface combustion, at the same time relieving itself of ashes.

At the bottom of the furnace is formed the passage G, to admit cold air from the floor, and when used as a stove this passage may be closed by a damper, *g*. (Shown clearly in Fig. 1.) In addition to or in the place of the passage G, I may use a pipe, H, to admit external air to the furnace, and the supply may be regulated by a damper, *h*. (Shown in Fig. 1.) I represents the door to the ash-pit, and J the fuel-door.

Upon the upper edge of the fire-pot C is placed the inner casing, K. This casing, together with the outer casing, A, forms the upper air-heating space, L, to which the air from the lower air-heating space, L', ascends, and external cold air is admitted to the upper space, L, through a series of perforations, *c*. Heated air from the space L finds its way to

the interior of the cone K through the perforations *d*, below and above the tube-plate, to assist combustion. At about the center of the cone K is located the tube-plate M, formed with a dome, M', and provided with one or more tubes, M<sup>2</sup>, projecting downward, through which the products of combustion pass, the plate serving to retard the direct escape of the gas until it may be thoroughly consumed, thus increasing the intensity of the heat. The tubes M<sup>2</sup> also serve to divide up the flame, so as to make a more uniform fire.

In the top of the inner casing, K, and the top N of the outer casing, A, is fitted the downwardly-projecting tube O, to act as a flue for the escape of the unconsumable gaseous vapors and to connect with and form the flue or chimney; also, while the gas gathers up around it inside of the upper end of the casing K, it causes a thorough combustion.

P is an aperture or vent to conduct hot air off to other apartments.

The heated air escapes from the space L through the opening P in the side when used as a furnace, and at *k* at the top when used as a stove, as indicated in Fig. 1.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

The conical inner casing, K, the bottom casing, C, and outer casing, L, surrounding the inner casing and made upright to form an air-space between the outer casing and the casing K, there being openings *c* formed in the outer casing and openings *d* in the inner conical casing, K, in combination with the pipe O, entering the tops of the two casings K L, and the horizontal plate M, held in casing K below the pipe O, the cone M' in said plate, and the short tubes M<sup>2</sup>, fitted in the plate M, near its outer edge, substantially as described.

BENJAMIN F. PRICE.

Witnesses:

J. S. MCCLURE,

F. W. MONTGOMERY.