

M. F. Magliocco.

Hot-Air Furnace.

N^o 44, 772.

Patented Oct. 18, 1864.

Fig. I.

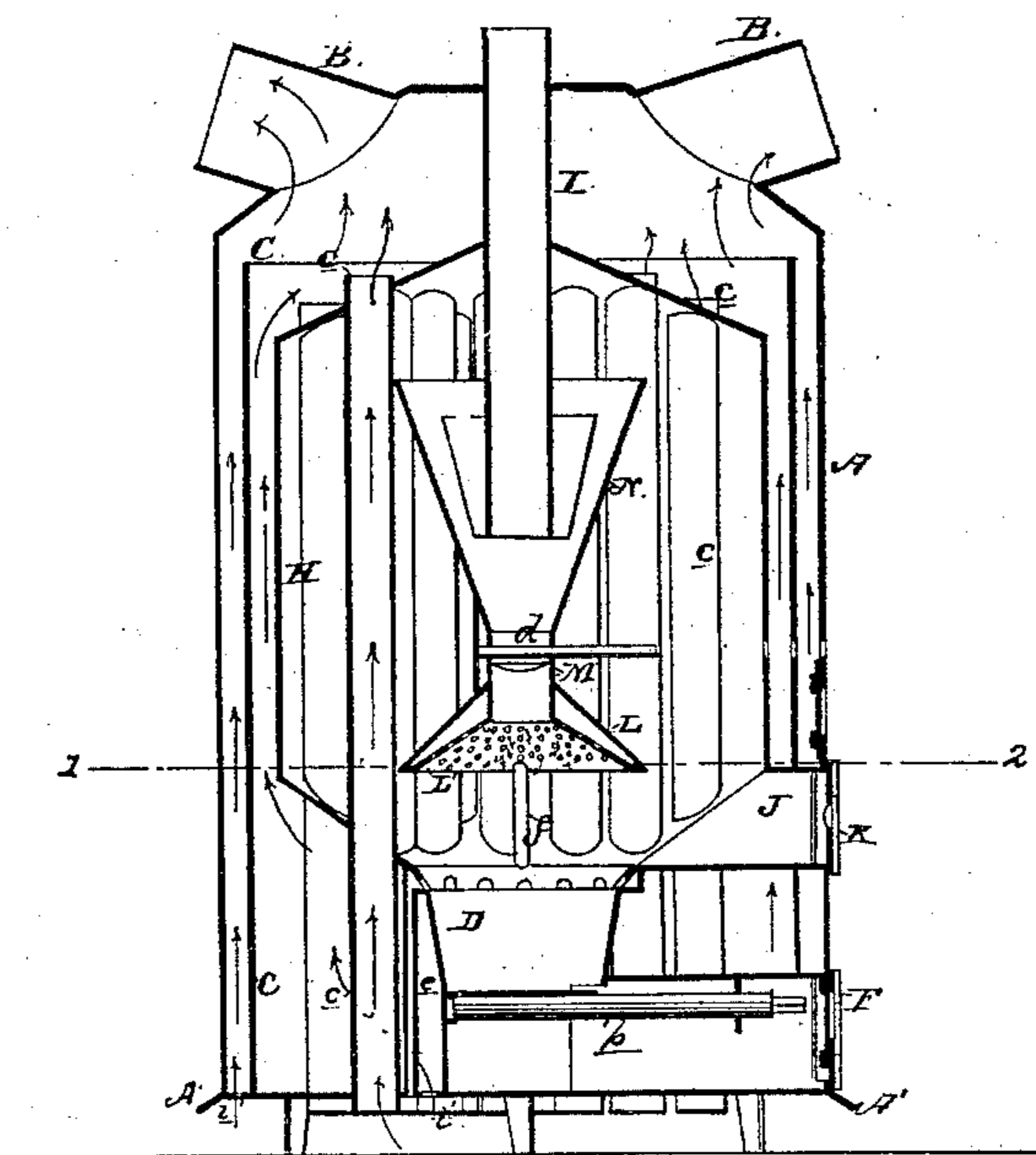
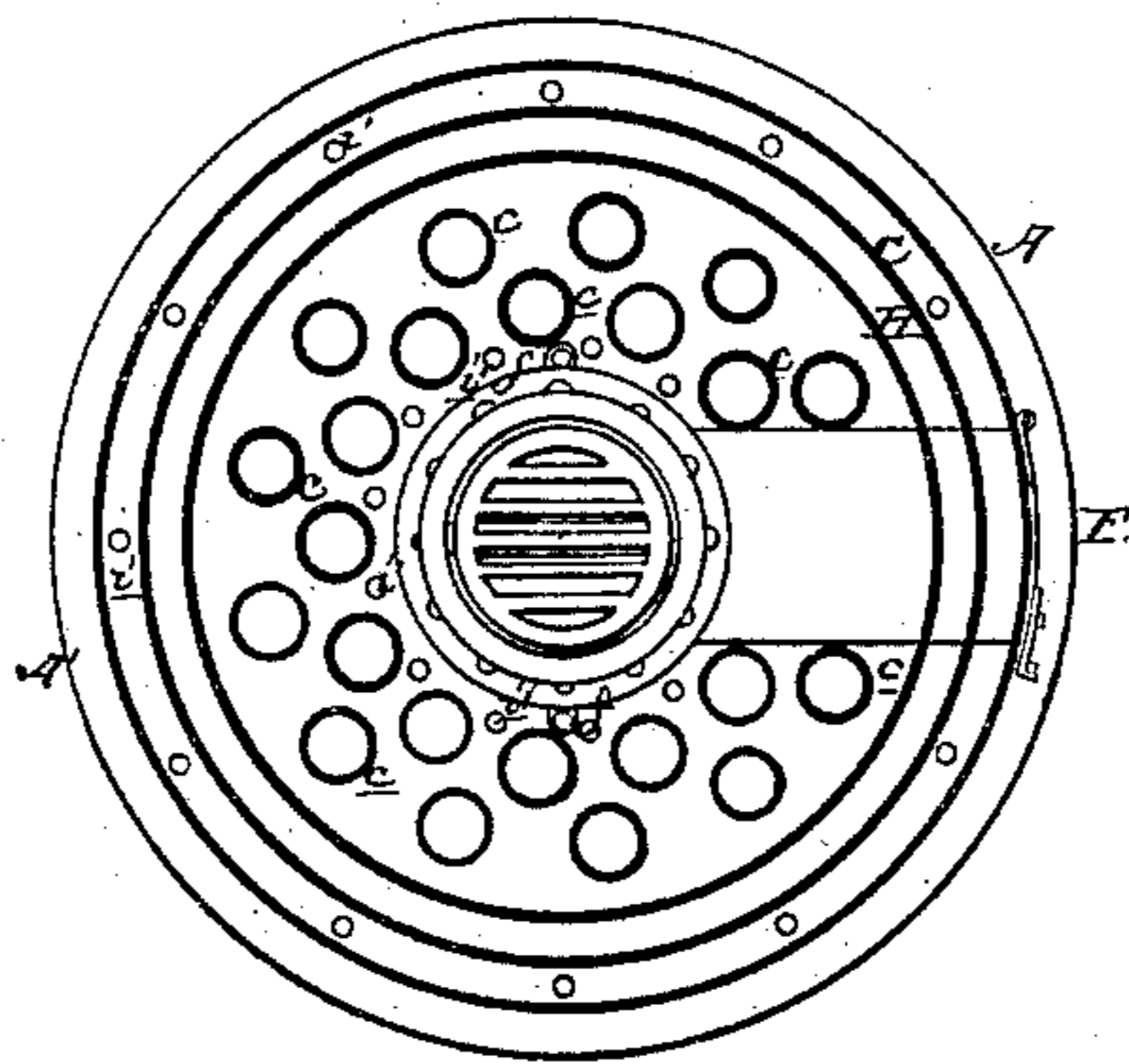


Fig. 2.



Witnesses.
Charles Howson
Jm Albert Steel

Inventor:
H. H. Cowson
(per Charles Foster)
Atty for Mt. Magliocco

UNITED STATES PATENT OFFICE.

MELCHIORE F. MAGLIOCCO, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO HIMSELF AND ABRAHAM ANDERSON, OF CAMDEN, NEW JERSEY.

IMPROVED FURNACE.

Specification forming part of Letters Patent No. 44,772, dated October 18, 1864.

To all whom it may concern:

Be it known that I, MELCHIORE F. MAGLIOCCO, of Philadelphia, Pennsylvania, have invented certain Improvements in Heaters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists, first, in certain casings and tubes so arranged in respect to the fire-pot that the air which passes through the heater will be thoroughly and rapidly heated; secondly, in certain plates formed and arranged as described hereinafter for distributing cold air among the heated gases arising from the fire-pot; thirdly, in devices hereinafter described for causing the heated products of combustion to circulate in contact with the surfaces of the tubes and casing.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a sectional elevation of my improved heater; and Fig. 2 a section on the line 1 2, Fig. 1.

A is a cylindrical casing, which rests on the base-plate A', and is closed at the top, except where the discharge-pipes B are connected to the same. Within the casing A is a somewhat smaller casing, C, which is open at the top and extends nearly to the top of the outer casing, A. In the center of the casing C is the fire-pot D, beneath which is the ash-pit E, the latter extending forward through both casings and being provided at its outer end with a door, F. The grate G is hung to a rod, b, which turns in suitable bearings and has a square end to which a handle may be applied.

Directly above the fire-pot D is a casing, H, closed at the top and at the lower end, except where it communicates with the fire-pot, a pipe, I, projecting through the upper end of the casing and through the top of the casing A. Through the top and bottom of the casing H and through the base plate A' extends a series of vertical pipes, c, which are open at both ends. From the lower part of the casing

H, above the fire-box, to the outer casing, A, extends a square pipe, J, which has on its outer end a door, K, the said pipe forming a passage for the admission of fuel to the fire-pot.

Directly over the fire-pot D is suspended a cone-shaped plate, L, to the lower edge of which is secured a perforated plate, L', there being a space inclosed between the plates, and from the centers of both plates projects upward a short pipe, M, to the upper end of which is connected the lower end of a funnel, N, the pipe I extending nearly to the bottom of the said funnel. Within the pipe M is a damper, d, which can be operated by a rod extending to the outside of the casing.

Around the upper edge of the fire-pot is an annular chamber with perforations in the side next the interior of the pot, the said chamber being supplied with air through tubes e, extending from the same through the base-plate A'. Through the base-plate A' and through the bottom of the chamber H extend tubes f, open at both ends and communicating at the upper ends with the space between the plates L and L'.

In the base-plate A' are openings i and i', the former admitting air from beneath the base-plates to the interior of the heater between the casings A and C, and the latter admitting the air to the interior of the casing C.

When the fire is kindled, the damper d should be turned so that the products of combustion can pass directly upward through the pipes M and I to the chimney. After the fuel has become fully ignited the damper should be turned to the position shown in Fig. 1, so that the heated products of combustion shall be deflected by the plates L toward the sides of the casing H and shall pass upward and around the tubes c to the top of the funnel N, and downward into the latter to the lower end of the pipe I, and thence to the chimney, being thus compelled to circulate within the interior of the casing H in such a manner as to thoroughly heat the latter and the tubes c.

As the heated gases from the ignited fuel are brought in contact with the perforated plate L' they are intimately mixed with the cold air which issues from the perforations in the said plate and are entirely consumed.

The cold air enters the heater through the openings *i* and *i'* in the base and through the tubes *c*, and passes upward in contact with the heated surfaces of the casing and tubes to the top of the heater, and out of the latter in a thoroughly heated state through the distributing pipes *B*.

It will be apparent that by the arrangement of casings and pipes above described the products of combustion from the fire are distributed in the most efficient manner for heating the surfaces with which the air passes in contact, and that none of the surfaces so heated are so exposed as to distribute their heat to the external air and thereby waste the same.

It will also be seen that by introducing the cold air through the plate *L'* in the manner described it will be intimately mixed with the heated products of combustion and effectually aid in promoting the consumption of the same.

I claim as my invention and desire to secure by Letters Patent—

1. The casing *H*, arranged above the fire-pot and combined with the pipes *c* and the casings *C* and *A*, substantially as and for the purpose set forth.

2. The plate *L*, perforated plate *L'*, and tubes *f*, or their equivalents, arranged in respect to each other and to the fire-pot, substantially as and for the purpose set forth.

3. The funnel *N*, pipe *M*, with its damper *d*, and plates *L*, arranged within the casing *H*, above the fire-pot, in respect to the latter and the pipe *I* as set forth, for the purpose described.

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

MELCHIORE F. MAGLIOCCO.

Witnesses:

CHARLES E. FOSTER,
JOHN WHITE.