H. WHITTINGHAM.

Hot Air Furnace.

No. 57,027. Patented Aug. 7, 1866.

Fig. 3.

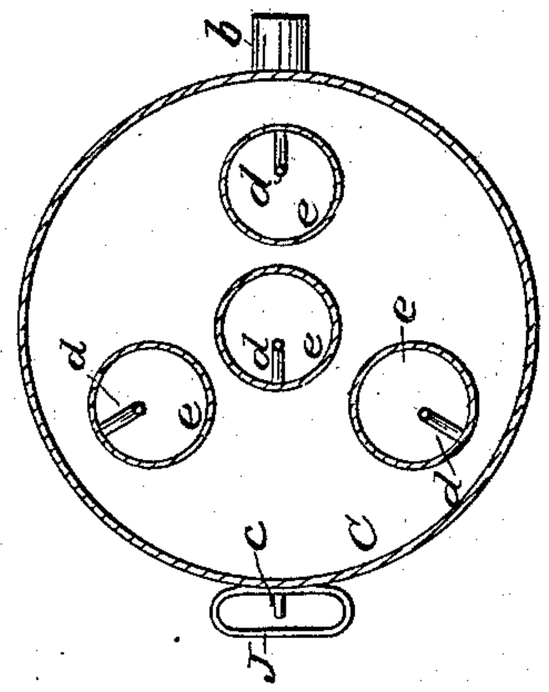


Fig. 2.

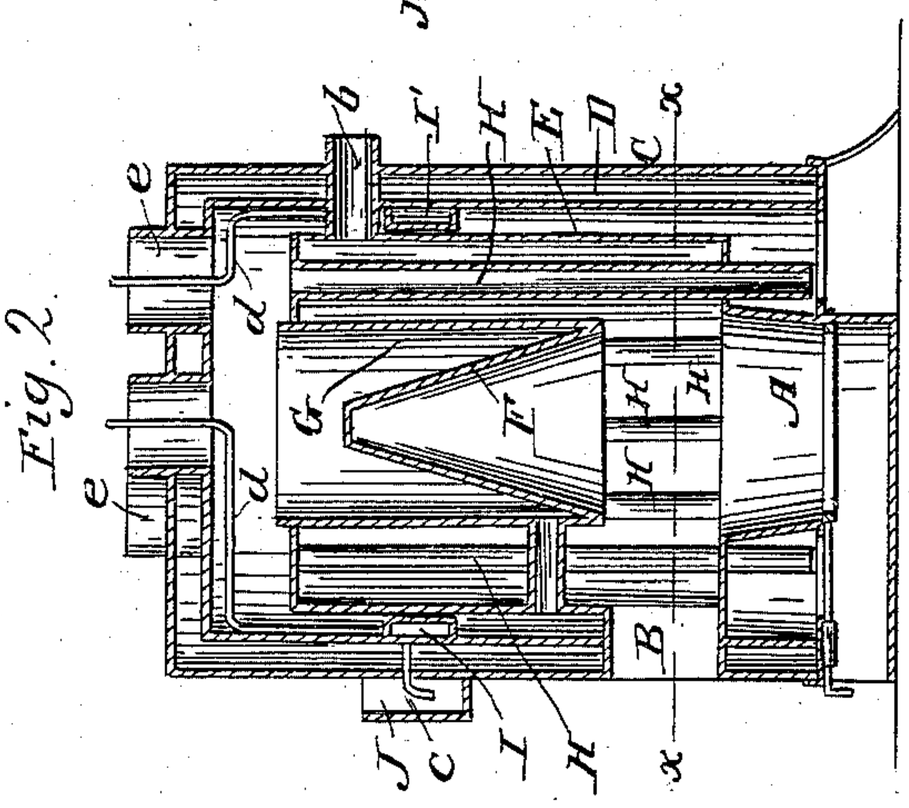
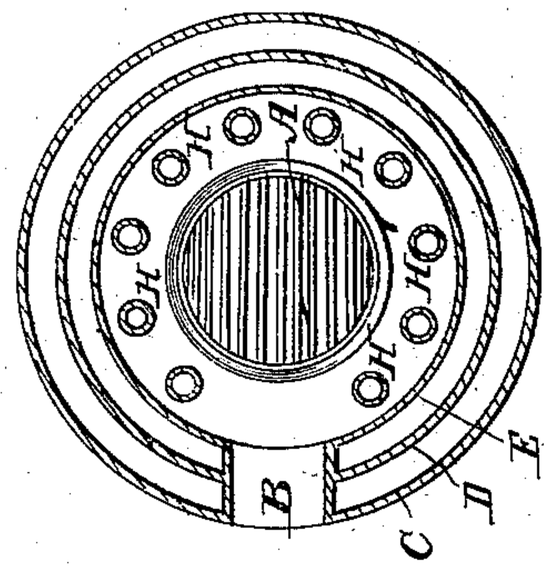


Fig. 1.



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY WHITTINGHAM, OF NEW YORK, N. Y.

HOT-AIR FURNACE.

Specification forming part of Letters Patent No: **57,027**, dated August 7, 1866.

To all whom it may concern:

Be it known that I, HARRY WHITTINGHAM, of the city, county, and State of New York, have invented a new and Improved Hot-Air Furnace; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a horizontal section of this invention taken in the plane indicated by the line *x x*, Fig. 2. Fig. 2 is a central vertical section of the same. Fig. 3 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention consists in a hot-air furnace in which the heated products of combustion are concentrated in a cone which is above the fireplace and inclosed in a cylindrical drum in such a manner that a great radiating-surface is obtained and the heat is forced against the air-pipes. The air-pipes extend below the heating-drum, so that the entrance of the cold air into the same is facilitated and the heat radiating from the fire-pot is utilized. An annular evaporator is secured to the inner surface of the jacket which surrounds the heating-drum, and supplied with water from a suitable supply-tank in such a manner that a large evaporating-surface for the water is obtained and the hot air arising from the furnace is supplied with the requisite quantity of moisture.

A represents the fire-pot of my hot-air furnace, to which the fuel is introduced through the throat B, which passes through the outer shell, E, the jacket D, and the heating-drum E.

The interior of the heating-drum is occupied by a cone, F, which is surrounded by a cylinder, G, and the heated products of combustion, as they rise from the fire-pot, are concentrated in said cone, and the heat is radiated with great intensity and forced against the air-pipes H.

The cylinder G is open at the top and it is supplied with air through a pipe, *a*, which extends through the heating-drum to the space between said drum and the jacket D, which is supplied with air through suitable apertures in the bottom plate of the furnace.

The air-pipes H pass up through the heating-drum, and they extend below the bottom of the same, so that the external air finds ready access to the same, and, furthermore, the heat radiating from the fire-pot is utilized in heating the lower parts of the air-pipes.

The smoke or products of combustion pass off through a pipe, *b*, which extends from the drum E through the jacket D and the outer shell, C.

I′ is an annular evaporator, which is secured to the inner surface of the jacket D, and extends close to the heating-drum E, as clearly shown in Fig. 1 of the drawings. This evaporator extends all round the heating-drum, and it is supplied with water through a pipe, *c*, which extends through the jacket D and outer shell, C, to a suitable supply-tank, J. From the annular evaporator rise small pipes *d* into the hot-air discharge-pipes *e*, and the hot air passing up through said discharge-pipes is thus supplied with the requisite quantity of moisture, and the injurious effect of the heated air is prevented.

The outer shell, C, prevents the cold external air from coming in direct contact with the jacket D so as to prevent a waste of heat.

By these means a hot-air furnace is obtained which, with a comparatively small quantity of fuel, produces a large quantity of heated air, and which can be made cheap and durable.

What I claim as new, and desire to secure by Letters Patent, is—

1. The cone F, in combination with the fire-pot A, drum E, and air-pipes H, constructed and operating substantially as and for the purpose set forth.

2. In combination with the above, extending the air-pipes H through the bottom of the heating-drum, substantially as and for the purpose described.

3. The annular evaporator I′, in combination with the jacket D and heating-drum E, constructed and operating substantially as and for the purpose set forth.

HARRY WHITTINGHAM.

Witnesses:

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