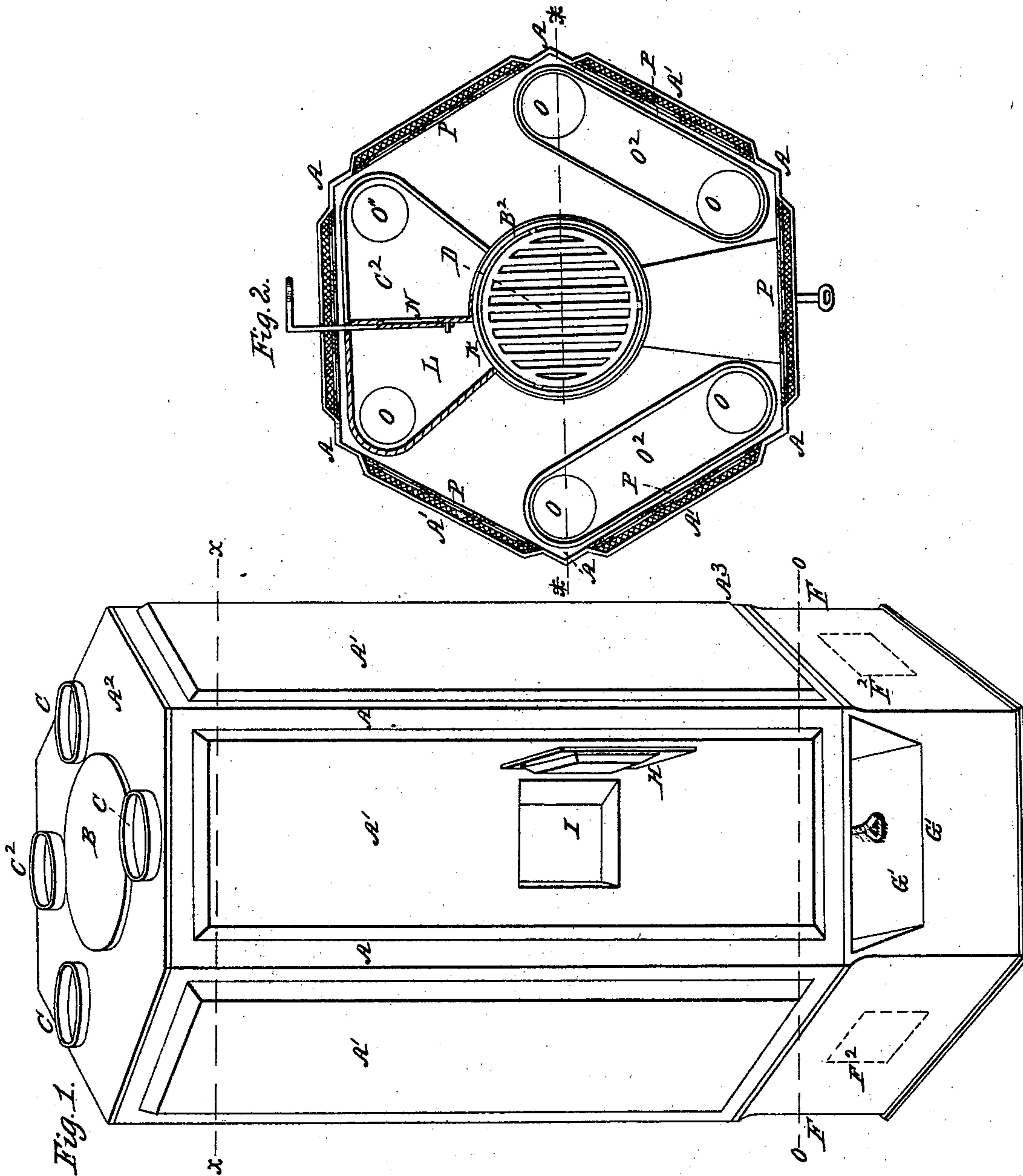


W. HICKOK.  
Hot Air Furnace.

No. 5,118.

Patented May 15, 1847.

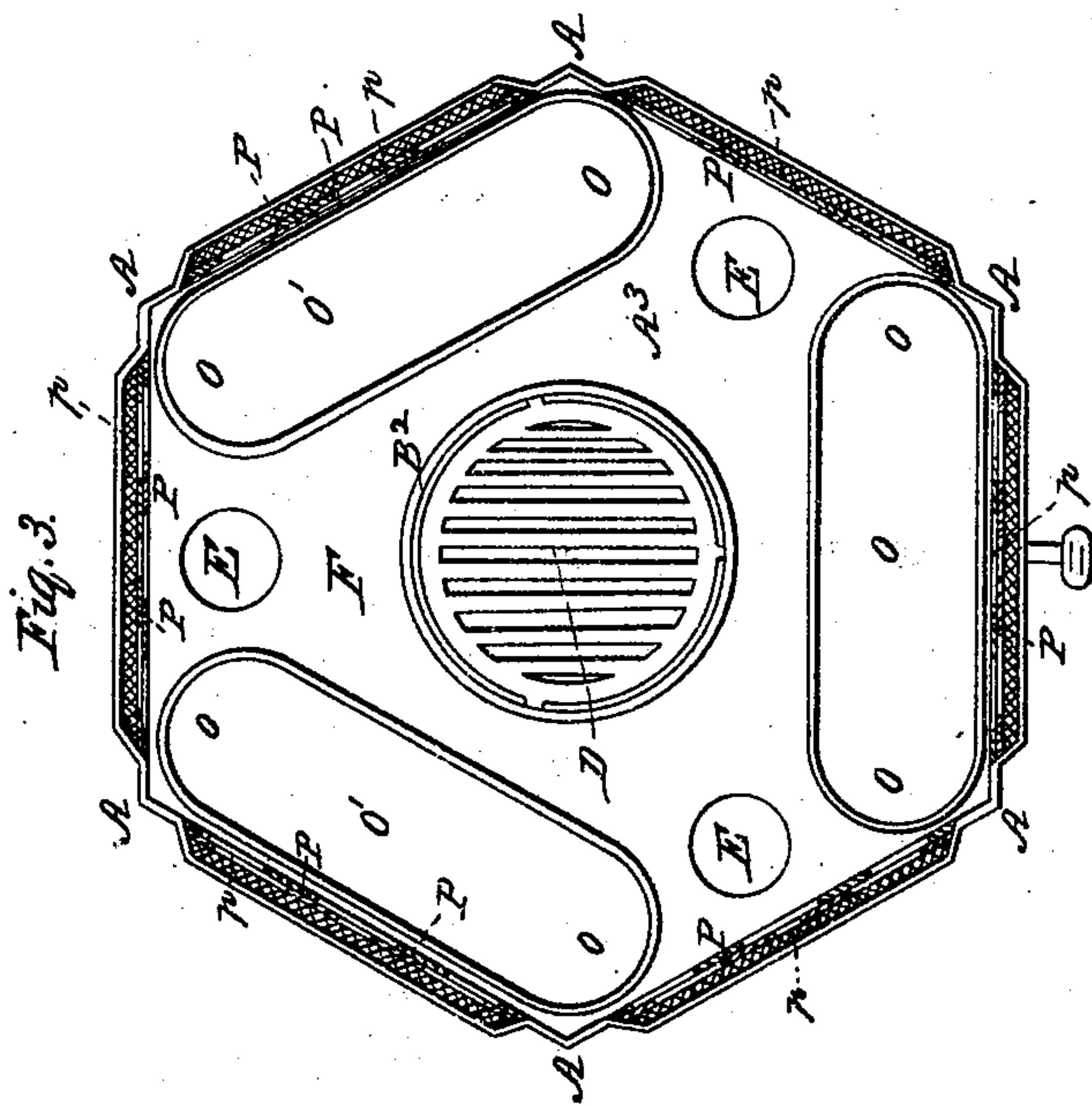
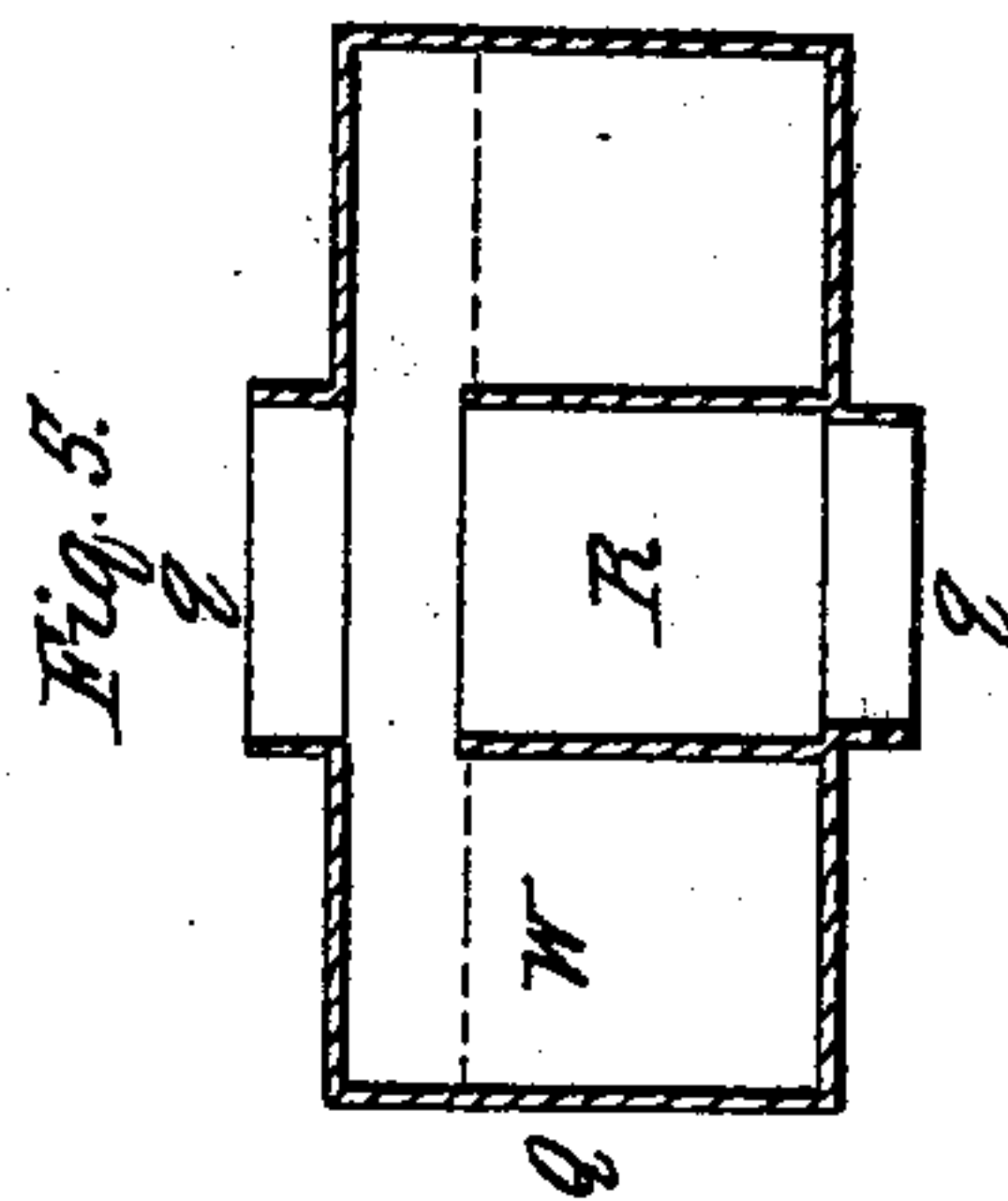
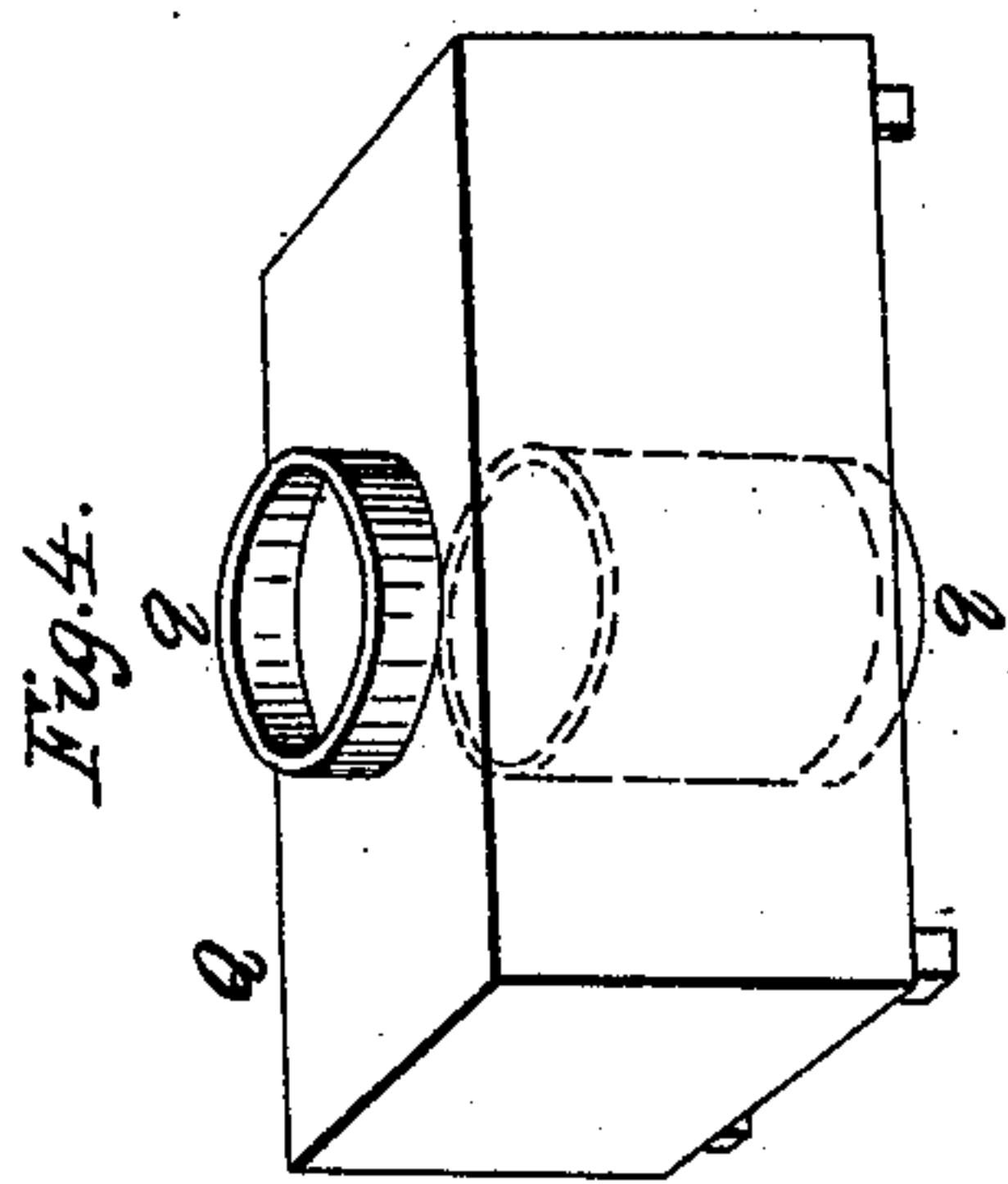


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2 Sheets—Sheet 2.

No. 5,118.

Patented May 15, 1847.





# UNITED STATES PATENT OFFICE.

WM. HICKOK, OF NEW YORK, N. Y.

## AIR-HEATING FURNACE.

Specification of Letters Patent No. 5,118, dated May 15, 1847.

*To all whom it may concern:*

Be it known that I, WILLIAM HICKOK, of the city and county and State of New York, have invented a new and useful Furnace  
5 for Heating Buildings, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a perspective view of the  
10 heater. Fig. 2 is a horizontal section on the line  $x x$  of Fig. 1 through the upper sectional flues. Fig. 3 is a horizontal section on the line  $o o$  of Fig. 1 through the lower sectional flues. Fig. 4 is a perspective view  
15 of the vaporizer. Fig. 5 is a vertical longitudinal section of ditto.

This heater is made in the form of a polygon having its sides A recessed outwardly in oblong panels A' the recess or panels  
20 being filled with similarly shaped plates of plaster of Paris, soap stone, or other non-conducting material, that will prevent the radiation of the heat through said plates. These plates are held together in a vertical  
25 position by two horizontal parallel hexagonal plates A<sup>2</sup> A<sup>3</sup> and vertical screw rods or other suitable contrivances. The upper hexagonal plate A<sup>2</sup> is cast with a flange or lip around its outer edge extending down-  
30 ward of sufficient depth to overlap the upper edges of the vertical plates of the hexagonal chamber.

The bottom hexagonal plate A<sup>3</sup> has a  
35 similar flange or lip turned upward around its outer edge for receiving and confining the lower ends of the said vertical plates composing the sides of the hexagonal hot air chamber. The top plate A<sup>2</sup> contains a large round opening in the center (directly  
40 over the circular chamber of combustion B<sup>2</sup> hereafter described) through which the fuel may be introduced to the furnace—said opening being closed by a cover or lid B during the combustion of the fuel. Around  
45 this central opening are made four, or more, or less, small round, or square, openings, C, provided with collars to which are fitted pipes for conveying heated air to the rooms of the upper stories of the building. The  
50 bottom hexagonal plate A<sup>3</sup> contains a round opening in the center for the grate D. Also several small openings E around the central opening to admit the air to be heated. The said bottom plate rests upon a base F  
55 of sufficient height composed of the same number of plates, or sides, as the body of

the heater. Two or more of these sides have openings as at F<sup>2</sup> to admit air to be heated. Or if more convenient the air may be re-  
60 ceived underneath and have said openings closed as represented at F<sup>2</sup> Fig. 1, by dotted lines the air ascending from the base F through the openings E among the pipes  $o$ .

The front plate of the base contains an opening G to admit the ash pan which  
65 slides into a box G' of a shape corresponding with that of the ash pan being made larger inside than the ash pan in order to slide freely therein. This casing or box G' around the ash pan prevents the escape of  
70 the ashes into the room through the openings in the sides of the base. The cylinder or chamber of combustion B<sup>2</sup> is made and arranged in the usual manner, extending  
75 from the bottom to the top plate of the heater, being of the same diameter as the central circular openings in said plates. It is provided with a door H and inclined feeding trough I of the usual form and ar-  
80 rangement.

The upper end of the chamber of combustion is closed by a round lid B which is to be raised when it is desired to have access to the interior of the fuel chamber through the top for feeding in the fuel or for any  
85 other purpose. Immediately below this lid and near the smoke pipe an opening K is made in the cylinder for a flue L to lead to the smoke pipe at pleasure, by a hinged  
90 valve N for the purpose of opening a direct communication from the fire chamber to the smoke pipe, or by closing it, for turning the draft through a series of zig zag pipes or flues  $o o$ , &c., arranged around the fire  
95 chamber between it and the non-radiating polygonal case which extends from said opening first horizontally then vertically down to near the bottom of the case—then horizontally—then vertically upward to the  
100 top—then horizontally toward the front—then down again—then horizontally then up, and so on until the whole annular space between the chamber and case be filled with  
105 said pipes or zig zag flues—the last upper horizontal section  $o''$  opening into the enlargement or base of the smoke pipe C<sup>2</sup> in which the aforesaid valve is placed. The horizontal or sectional parts of the flues  $o^2$   
110 Fig. 2 and at  $o'$  Fig. 3 are made square in three cross sections having semi-circular ends. The vertical parts of the flues are made cylindrical. The plates of plaster of



Paris *p* soap stone—or other non-conducting material, are confined in the aforesaid recesses in the vertical plates A' composing the polygonal case by means of metallic or  
5 other lattice work P, confined to the plates A.

The lining of the door is confined in the usual manner.

The vaporizer Q for imparting moisture  
10 to the heated air is a rectangular box having a round or square opening in the top and bottom surrounded by circular or square collars *q*—that on the bottom fitting over one of the collars *c* on the top of the heater  
15 surrounding one of the air holes. And the collar on the top of the vaporizer being made to receive the end of a conducting pipe for conducting the hot air to the apartment to be heated.

A cylindrical or square curb R is formed 20 around the opening in the bottom of the vaporizer on the inside thereof rising about two-thirds the height of the vaporizer. The vaporizer is to be half filled with water. The heated air strikes upon the surface of 25 the water and thus becomes moistened before passing through the pipe to the chamber to be heated. W represents the water.

What I claim as my invention and desire to secure by Letters Patent is— 30

The combination of the vaporizer Q with the air heater A constructed and operated in the manner and for the purpose above set forth.

WM. HICKOK.

Witnesses:

ELLWOOD BURDSELL,  
CHAS H. STEWART.