

(No Model.)

A. J. ERWIN.  
HOT AIR FURNACE.

No. 505,096.

Patented Sept. 19, 1893.

Fig. 1.

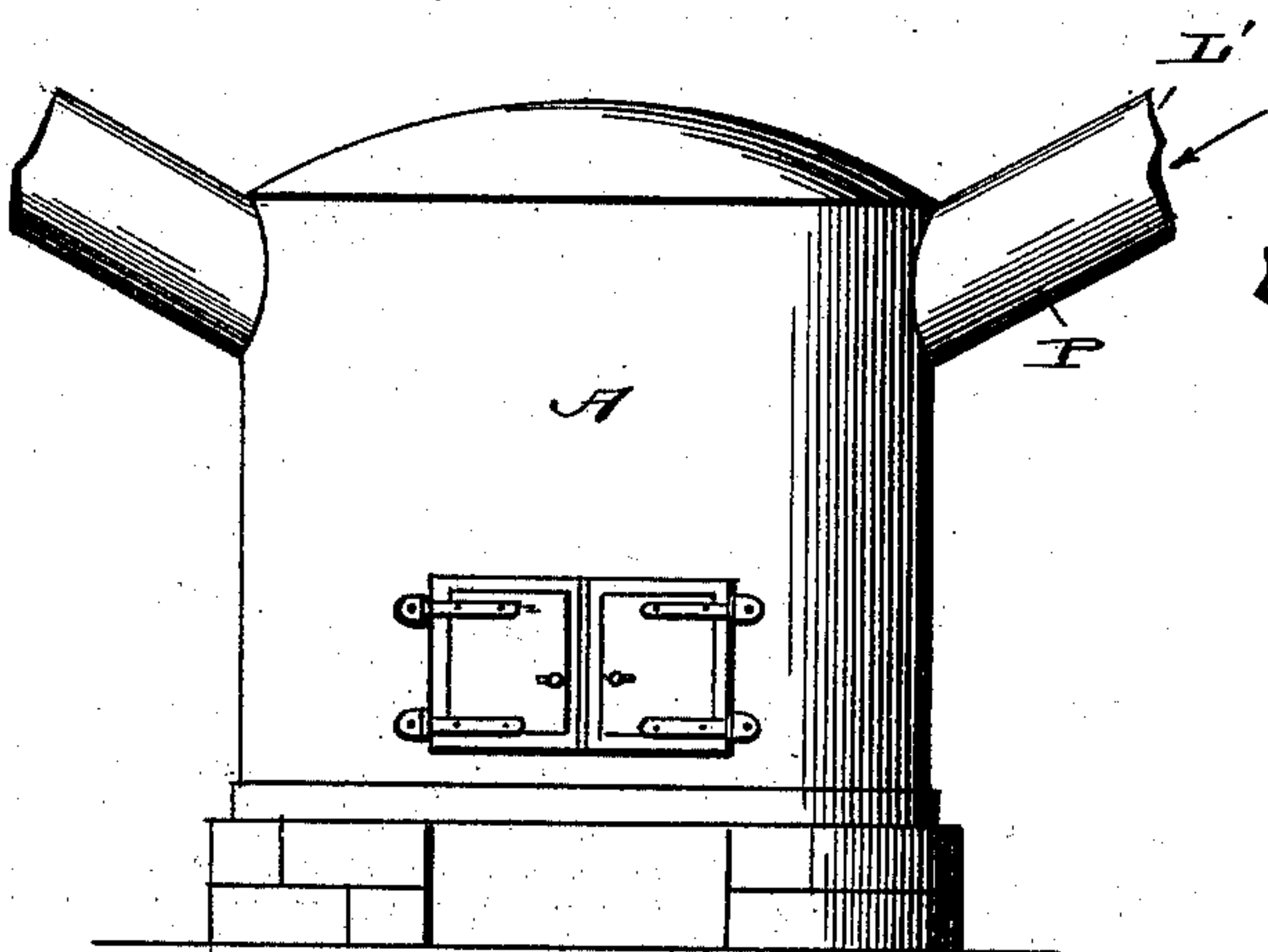


Fig. 2.

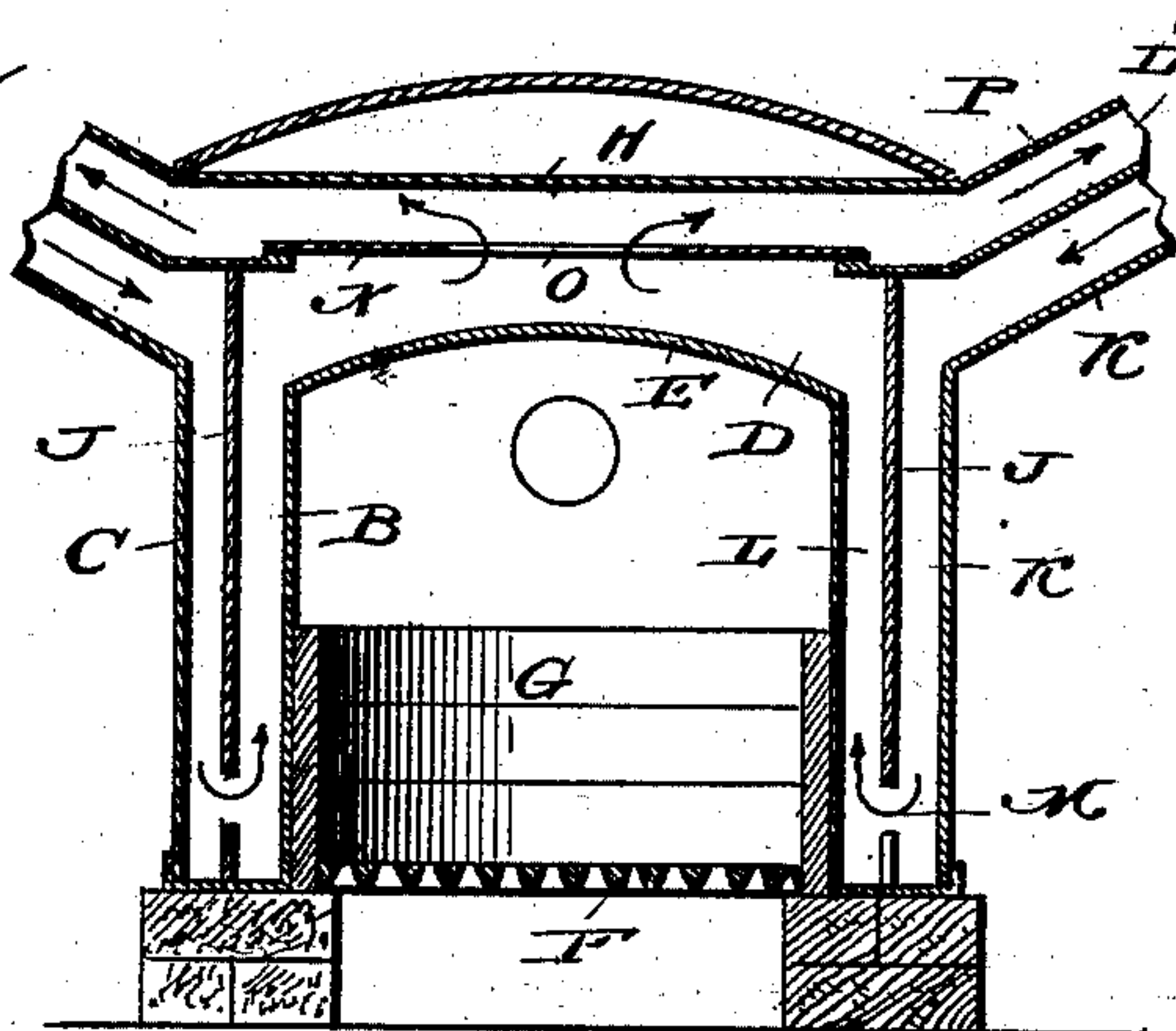
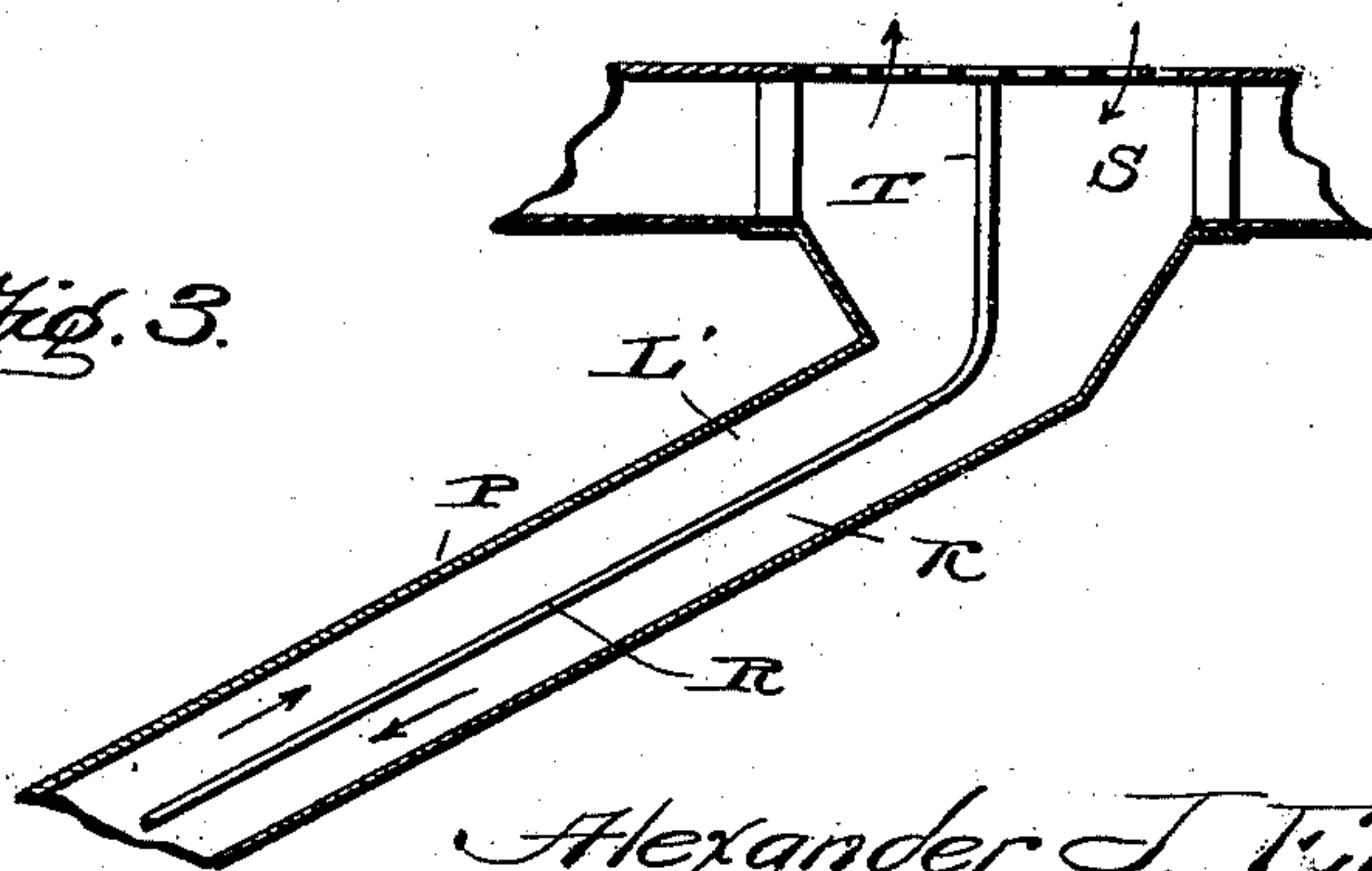


Fig. 3.



Witnesses:

*Wm. E. Schiele*  
*Wm. N. Moore*

Alexander J. Erwin.

Inventor:

by

*Thomas E. Parrow*

Atty.



# UNITED STATES PATENT OFFICE.

ALEXANDER J. ERWIN, OF MANSFIELD, OHIO.

## HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 505,096, dated September 19, 1893.

Application filed February 7, 1893. Serial No. 461,327. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER J. ERWIN, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Hot-Air Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in hot air furnaces and the objects of my invention are: first, to so construct a furnace that will obviate the necessity of using a cold air duct; second, to take the cooler air from the rooms and pass the same through the furnace to reheat and purify the same; third, to so construct the furnace that no air from the cellar or furnace room can pass into the air flues of the furnace; fourth, to make a cheap, durable and efficient means for the purpose stated.

In the accompanying drawings Figure 1 is a prospective view of my improved hot air furnace, showing the air ducts or pipes broken away. Fig. 2 is a vertical, longitudinal, sectional view of the same showing the general construction. Fig. 3 is a sectional view of one of the air ducts, attached to the register, showing a partition extending the full length which forms inlet and outlet ducts.

Similar letters refer to similar parts throughout the several views.

In the accompanying drawings A indicates the furnace which is composed of an inner and outer case, B and C, which are constructed of sheet steel. The inner case, B, is about twelve inches smaller in dimension than the outer case, C, which forms an air chamber, D, between the two cases. The inner case, B, is provided with crown sheet or head, E, which is air tight. This forms the fire box which is provided with the grate, F, and fire clay lining, G, extending a certain distance up to form a fire pot and prevent the fires from burning the sheet steel. The outer case, C, is also provided with an air-tight head, H, and a crown cap, I, to retain the heat.

J indicates a partition which is placed between the inner and outer cases which form the chamber, D, into two compartments, K and L. The said partition extends to the bottom of the case and is provided near the bottom with perforations, M. The said partition extends upward and is provided with a heavy cap, N, the said cap being provided with a center opening, O.

The outer case, C, is provided with a number of air pipes, P, the number sufficient to supply the number of rooms to be heated. The said pipes are constructed with a partition, R, running longitudinally there the whole length forming the one pipe into two, one above the other. The said pipes extend from the furnace to the registers in the floor of the rooms. The register opening, S, is constructed with a partition, T, which connects with the partition, R, in the pipe, P.

The description and illustrations fully show and describe the construction of my improved furnace.

It will be readily seen that the only way to supply the hot air to the rooms is to draw the cooler air from the rooms. The lower tube, R, supplies the furnace with the cool air. There being a greater amount of heat in the inner chamber, L, than the outer chamber, K, the radiation will draw the air from the outer to the inner chamber through the perforations, M, thence upward through the opening, O, in the partition, N, thence up the upper tubes, L, l, and through the register into the room.

It will be readily seen by this construction that I accomplish three important results: First, I have not to heat air at a low temperature, the air passing into the furnace being but a few degrees cooler than the air passing from the same. Second, I draw all impure air from the rooms and purify the same by passing through the furnace. Third, the air being warm air in the place of cold air, it does not take as much fuel to heat the same, saving a certain percentage in consumption of coal.

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

The furnace herein shown and described,

consisting of the base, the fire pot thereon, the  
closed casing surrounding the fire pot, the  
casing inclosing said closed casing having  
openings at the lower portion and upper por-  
5 tion, a heat conducting chamber above the  
latter casing, a heating pipe leading from the  
said chamber a cold air supply pipe leading  
to the casing having the openings, and regis-

ters communicating with the heating and  
supply pipes. 10

In testimony whereof I affix my signature in  
presence of two witnesses.

ALEXANDER J. ERWIN.

Witnesses:

I. S. DONNELL,  
SAML. MARRIOTT.