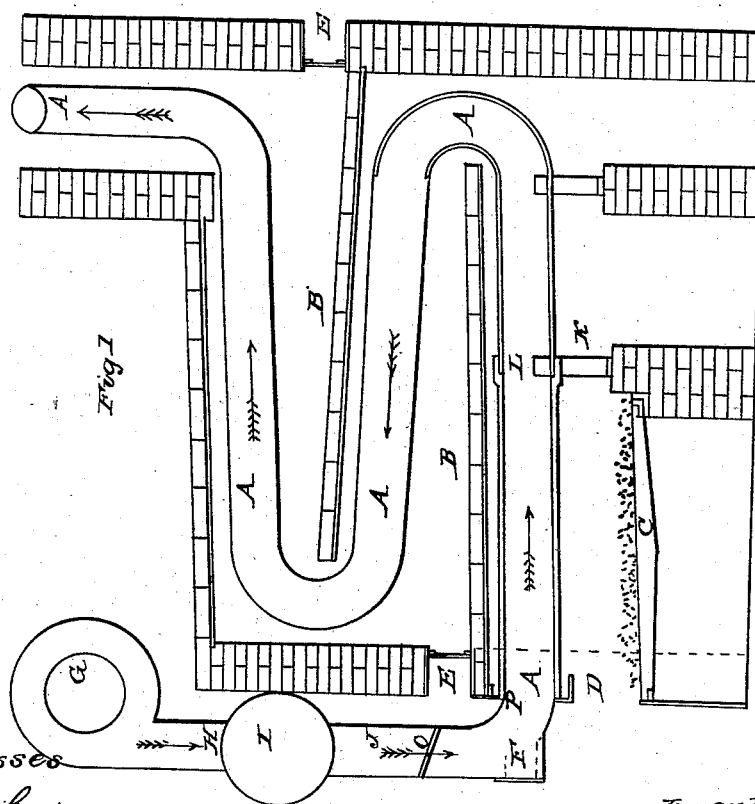
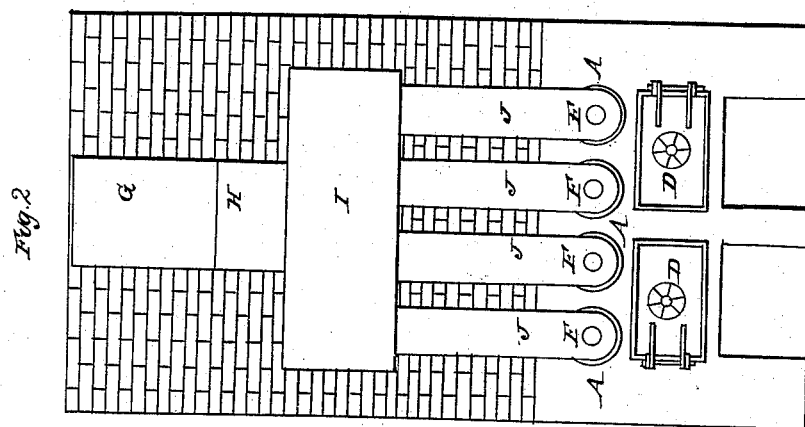


T. WALLACE.  
Hot Air Furnace.

No. 54,795.

Patented May 15, 1866.



Witnesses

*S. Coburn*  
*Geo. B. Nichols*

Inventor  
*Thomas Wallace*  
by  
*Sam. H. H. H.*

# UNITED STATES PATENT OFFICE.

THOMAS WALLACE, OF CHICAGO, ILLINOIS.

## HOT-AIR FURNACE.

Specification forming part of Letters Patent No. 54,795, dated May 15, 1866; antedated May 1, 1866.

*To all whom it may concern:*

Be it known that I, THOMAS WALLACE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hot-Air Furnaces; 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 the letters and figures marked thereon, which form part of this specification.

The nature of my invention will be clearly understood from the description hereinafter given.

To enable those skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, reference being made in so doing to the aforesaid drawings, in which—

Figure 1 represents a longitudinal vertical section of my invention, and Fig. 2 a front elevation of the same.

The same letters of reference in the different figures denote the same parts of my invention.

A represents a horizontal series of pipes, arranged directly over the fire-bed C of the furnace, as shown, and extending back to the rear of the furnace, where they are curved or bent back, so as to extend forward to the front of the furnace, as shown, when, by a similar curve to the one just described, said pipes extend back to the rear of the furnace and pass out. This arrangement of the pipes, each of their horizontal sections lying a suitable distance above the tier below, enables the horizontal plates or partitions B to be arranged between said sections, so that the zigzag direction of the pipes corresponds to the zigzag form of the chambers through which they pass, said partitions extending alternately from the front and rear walls of the furnace nearly to the curved part of the pipes, as shown.

By reason of the said partitions B the heat and smoke produced by the combustion of the fuel upon the grate C follow the direction of the pipes A, and are kept constantly in contact with them, instead of passing directly up past the same to escape through the flue, as would be the case were the partitions removed, and thus obtaining a greater temperature of the air passing through said pipes with much less fuel than in ordinary furnaces.

D represent the furnace-doors, through which fuel is introduced; and E represent small doors, through which the soot and ashes collecting upon the partitions B may be removed.

J represents a series of pipes attached to the front ends of the pipes A, as shown, extending upward to be attached to the air-chamber I, which is connected with the fan or blower G by means of the pipe H. When the fire is first kindled in the furnace the fan G is put in operation and forces the air through the pipes A; but after the heating-pipes are thoroughly heated the removable attachment G H I J may be removed, as the upward tendency of the heated air will induce a sufficient quantity of air without the aid of the fan.

F represents plates of glass, isinglass, or any other suitable transparent material, arranged, as shown, to enable the operator to look into the pipes A to see whether or not they are red-hot, and if not of the proper temperature, to regulate the fire accordingly.

That part of the pipe A which is directly over the fire is the first to burn out, consequently I make it removable by constructing said pipe with a joint at L.

K K are supports in the furnace, on which the pipe A rests. J' is a valve which turns on the pivot O and enables the operator to regulate the quantity of air which is forced through the pipe A.

The front attachment, G H I J, may be made of much lighter material than the pipe A, for it is attached to said pipe A at P, and is not subjected to any severe heat.

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

The arrangement of the zigzag pipe A and the horizontal plates or partitions B in a furnace in such a manner that the heat from the fire in the furnace shall be made to follow the pipe, substantially as and for the purpose set forth.

THOMAS WALLACE.

Witnesses:

SAMUEL STRAUS,  
L. L. COBURN.