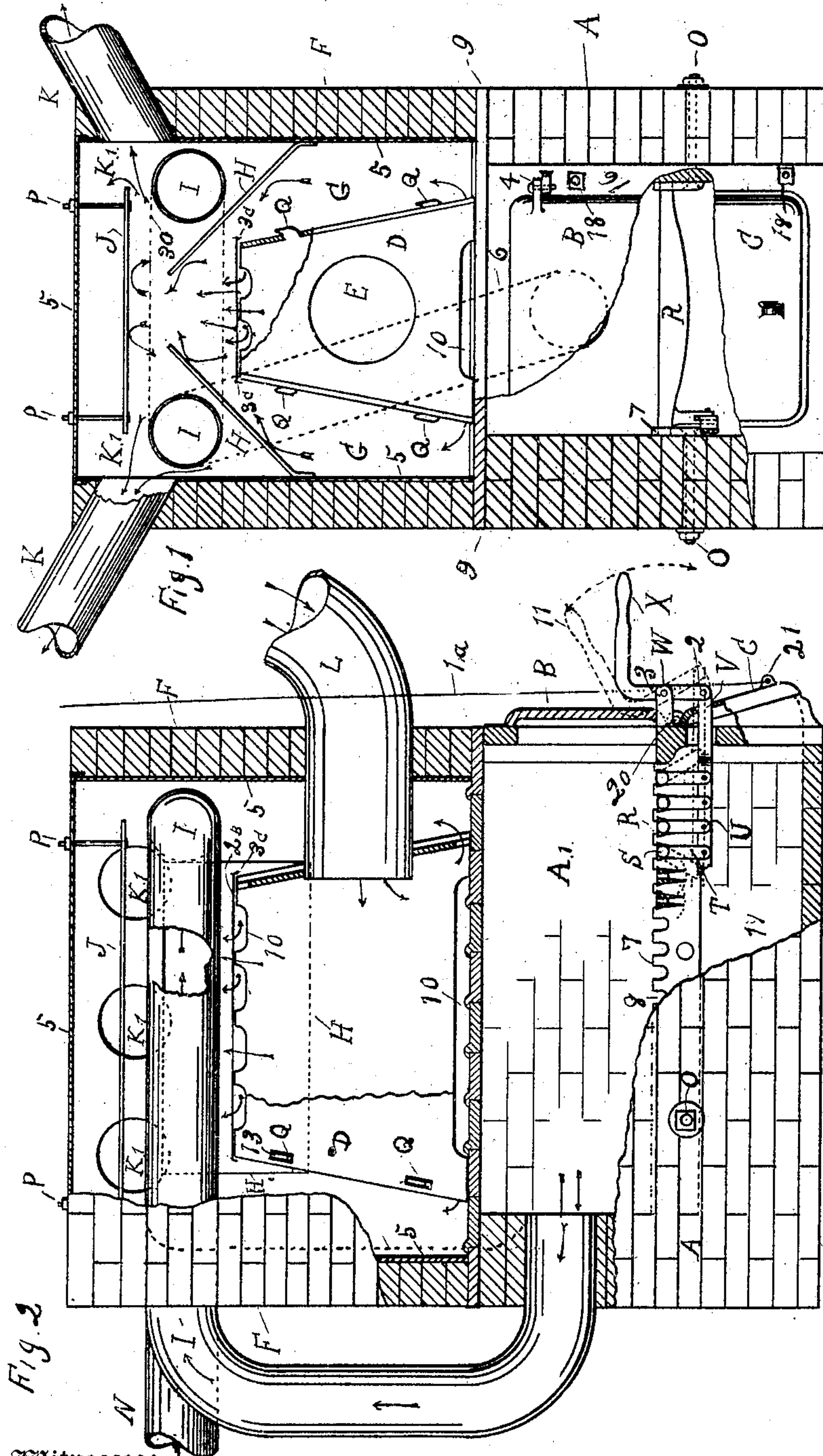


H. BOWERS.
HOT AIR FURNACE.
APPLICATION FILED MAR. 18, 1904.

2 SHEETS—SHEET 1.



Witnesses:
Elwin Mitchell
Silas D. Brown.

By

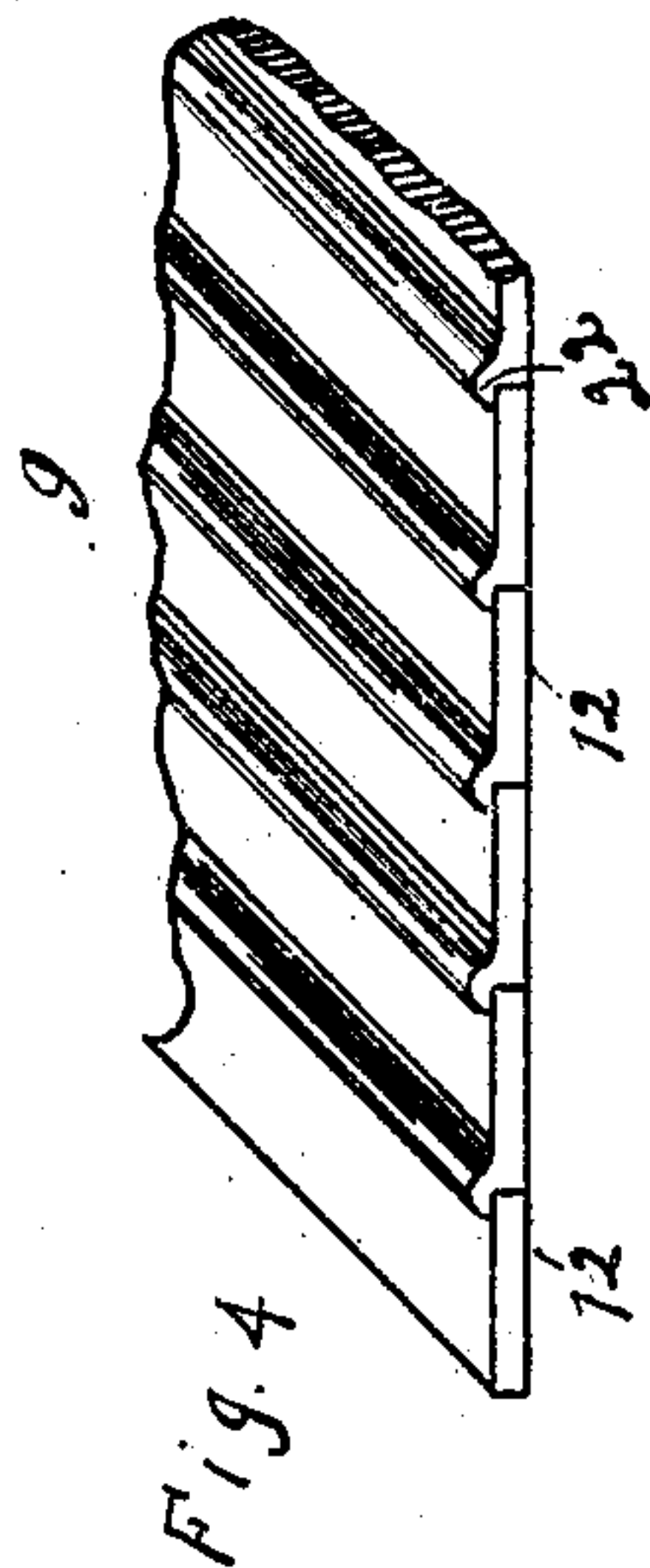
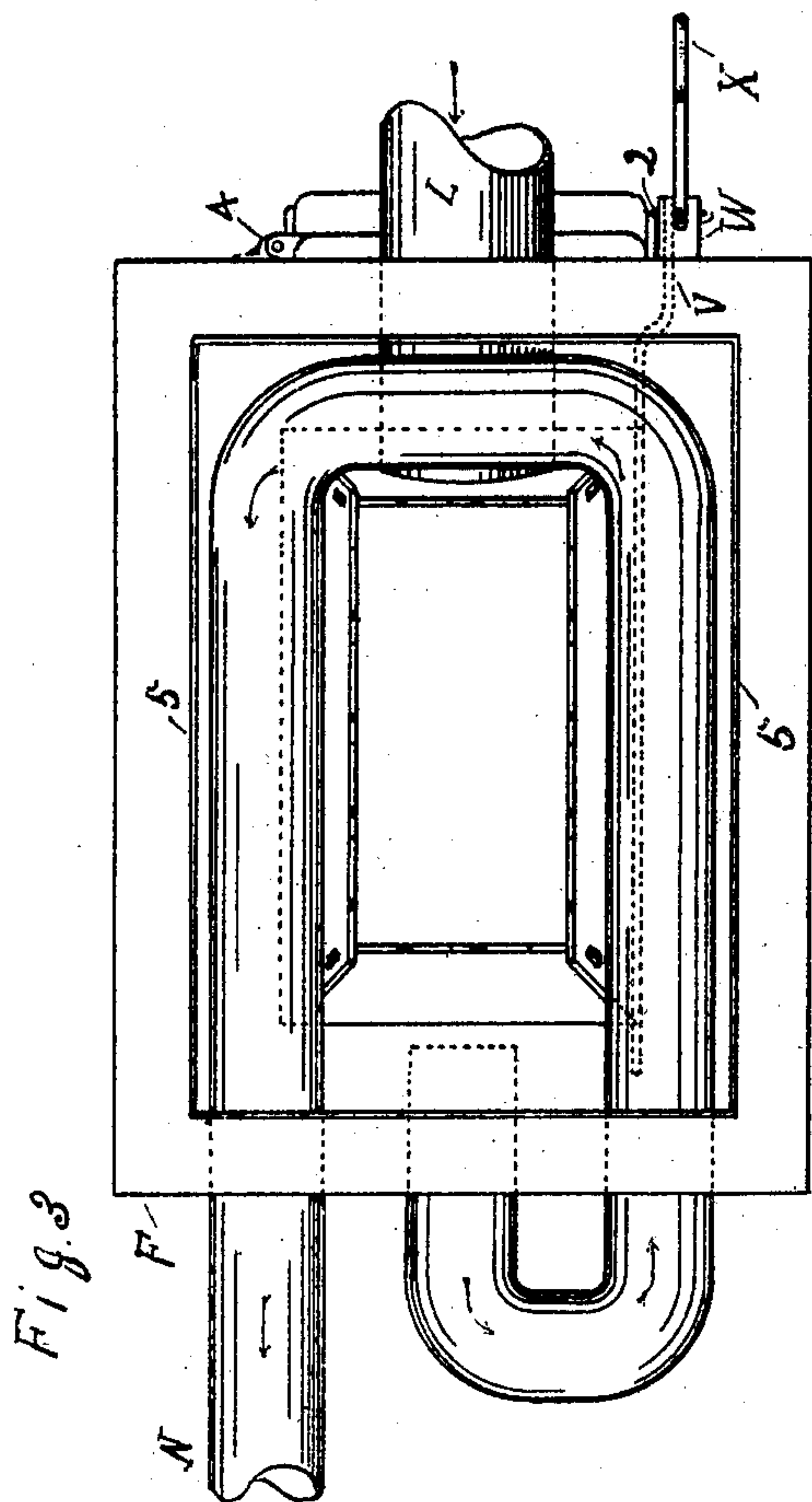
Inventor
Harvey Bowers
Attorney
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No. 796,492.

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UNITED STATES PATENT OFFICE.

HARVEY BOWERS, OF WICHITA, KANSAS.

HOT-AIR FURNACE.

No. 796,492.

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed March 18, 1904. Serial No. 198,839.

To all whom it may concern:

Be it known that I, HARVEY BOWERS, a resident of Wichita, in the county of Sedgwick and State of Kansas, 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.

My invention relates to improvements in hot-air furnaces, and has for its object the production of an economical, inexpensive, and durable apparatus. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation, parts being shown in section, of the furnace. Fig. 2 is a side elevation of the same with a portion of the side removed, showing the interior construction thereof. Fig. 3 is a plan view with the top of the furnace removed. Fig. 4 is a cast-iron covering for the top of the fire-box.

Similar letters and figures refer to similar parts throughout the several views.

The walls of the fire-box A are built of brick, and about midway up on the inside thereof extending longitudinally are flat bars of iron 7, secured thereto by bolts O. The top edge of said bars have indents 8, which are for the purpose of receiving the ends of the grate-bars R. To the front end of the fire-box is affixed a door-frame 16 by means of bolts 18, said bolts being built in the fire-box wall. A door B is secured to the door-frame 16 by means of hinges 4. The door C is secured at its upper edge to the door-frame 16 by means of hinges 20, Fig. 2. A perforated lug 21 is made on the door C, to which a rod or wire 1^a is attached and may be extended vertically through the floors to any part of the building, by which means the door C can be opened or closed to regulate the draft of air into the fire. A rectangular piece of iron 9, having transverse ribs 22, is placed on top of the brick walls A, which makes the top of the fire-box. Said iron may be cast in sections 12, if so desired. Plates of iron D, of the form shown in Figs. 1 and 2, are connected together by means of lugs Q, Fig. 1. Rectangular openings 13, Fig. 2, are made in the side pieces, which are for the purpose of receiving the lugs Q on the end piece. Said lugs are curved up, which is for the purpose of forcing and

holding the side and end pieces close together. Recesses 10 are made in either edge of said plates, which are to emit hot air from within the heater-box. A lid 2^b, having its edges 30 flanged, is loosely laid on top of the heater-box. In one end of the heater-box is a round opening E for the purpose of receiving the cold-air pipe L. The heater-box is positioned on the rectangular plate 9, as clearly illustrated in Figs. 1 and 2. Brick walls F are built up from the top of the furnace-walls extending above the heater D, as shown in Fig. 1.

A sheet-iron box 5 is placed inside the walls F, and over the heater-box D, suspended from the lower sides of the said box 5 by bolts P, is a plate J. To the insides of the box 5, extending longitudinally, are deflecting-wings H, their lower edges riveted or otherwise attached to said box 5, said wings extending out over the heater-box at an angle of forty-five degrees, as seen in Fig. 1.

The smoke-pipe I emerges from the fire-box A' and enters the box 5, passing longitudinally above the deflecting-wings H, and returns on the opposite side, as seen in Fig. 3, the free end N entering the smoke-stack. The object of this circuitous route is to utilize the hot air and smoke from the furnace. The cold-air pipe L passes through the wall F and the box 5 and enters the heater D through the round opening E. The hot-air-conducting pipes K enter the box 5 through the round openings K.

Having thus described the detailed construction of my apparatus, I will proceed to describe its operations generally. From the fire-box A' the hot air and smoke pass out in the direction indicated by the arrows through the hot-air box. The fire within the furnace heats the plate 9, on which is placed the heater D. The cold air enters the heater D through the pipe L. When the air becomes hot, it emerges from said heater through the recesses 10 and rises and is deflected by the wings H and the plate J and passes through the pipes K. When it is desired to regulate the heat, the door C is opened or closed by the wire 1^a from above.

It is obvious that the invention herein set forth is susceptible to many changes and modifications involving mechanical skill, which may be made within the scope of the invention without departing from the spirit thereof.

I do not, therefore, desire to be understood as limiting myself to the precise construction of the parts shown in the drawings.

Having thus described my invention, what I wish to secure by Letters Patent is—

1. In combination, a fire-box, a compartment formed above the fire-box, a box arranged within the compartment and resting on the floor thereof, said box having recesses formed in its edges, deflectors secured to the sides of the compartment, and extending over the box, a cold-air pipe communicating with the interior of the box, and a smoke-pipe leading from the fire-box through the compartment, the portion of the pipe within the compartment passing above the deflecting-plates.

2. In combination, a fire-box, a compartment formed above the fire-box, a box arranged within the compartment and resting on the floor thereof, said box having recesses formed in its edges, deflectors secured at one end to the sides of the compartment at a point below the plane of the top of the box, said deflectors extending upward on an incline and terminating at a point above the top of the box, a cold-air pipe communicating with the interior of the box, and a smoke-pipe leading

from the fire-box and passing through the compartment, the portion of the pipe within the compartment passing longitudinally above the deflectors.

3. In combination; a fire-box, a compartment formed above the fire-box, a box arranged within the compartment and resting on the floor thereof, said box having recesses formed in its edges, deflectors secured at one end to the sides of the compartment at a point below the plane of the top of the box, said deflectors extending upward on an incline and terminating at a point above the top of the box, a cold-air pipe communicating with the interior of the box, and a smoke-pipe leading from the fire-box and passing through the compartment, the portion of the pipe within the compartment passing longitudinally above the deflectors, and a deflector-plate suspended from the top of the compartment.

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

HARVEY BOWERS.

Witnesses:

EDWIN C. MITCHELL,
SILAS S. BROWN.