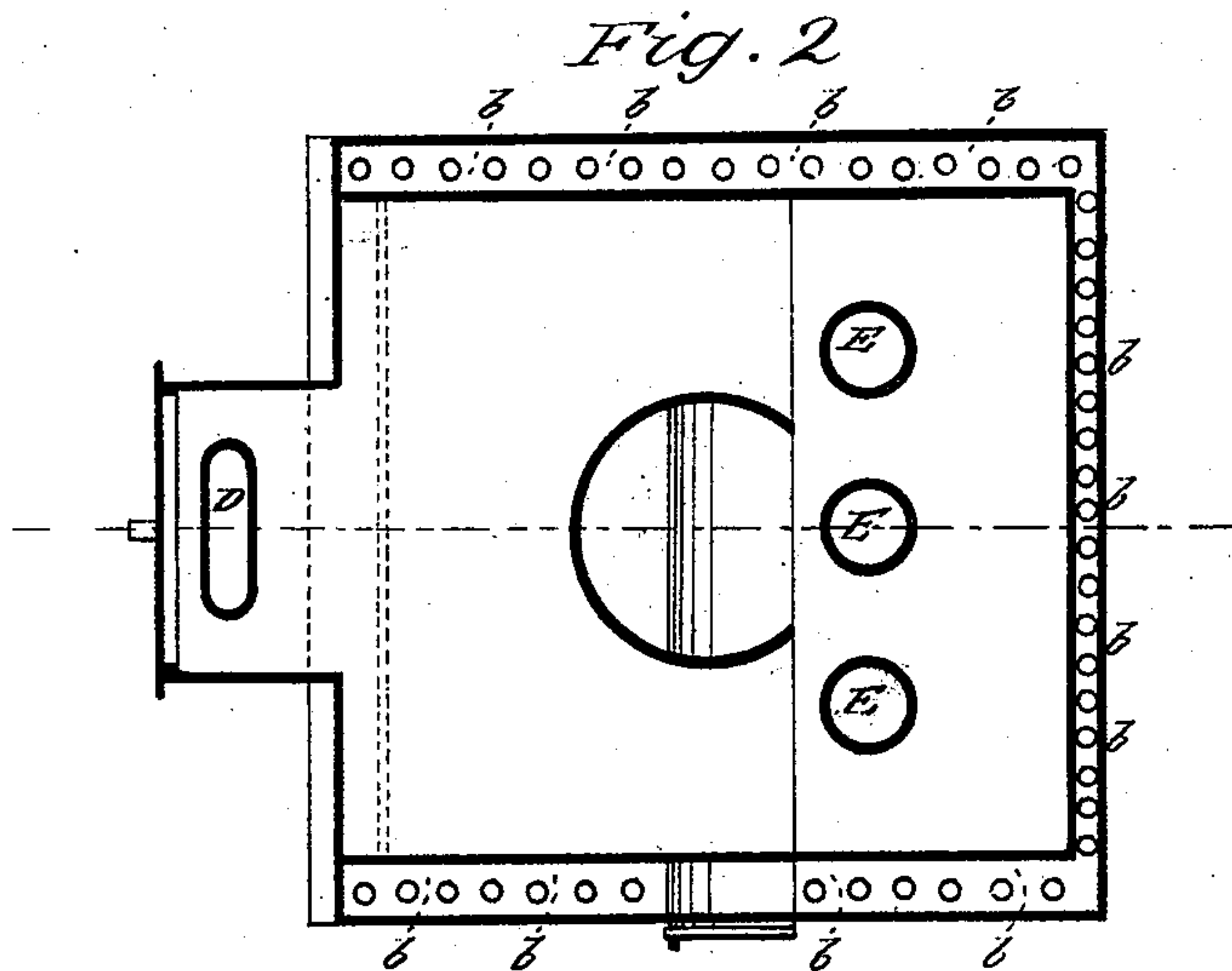
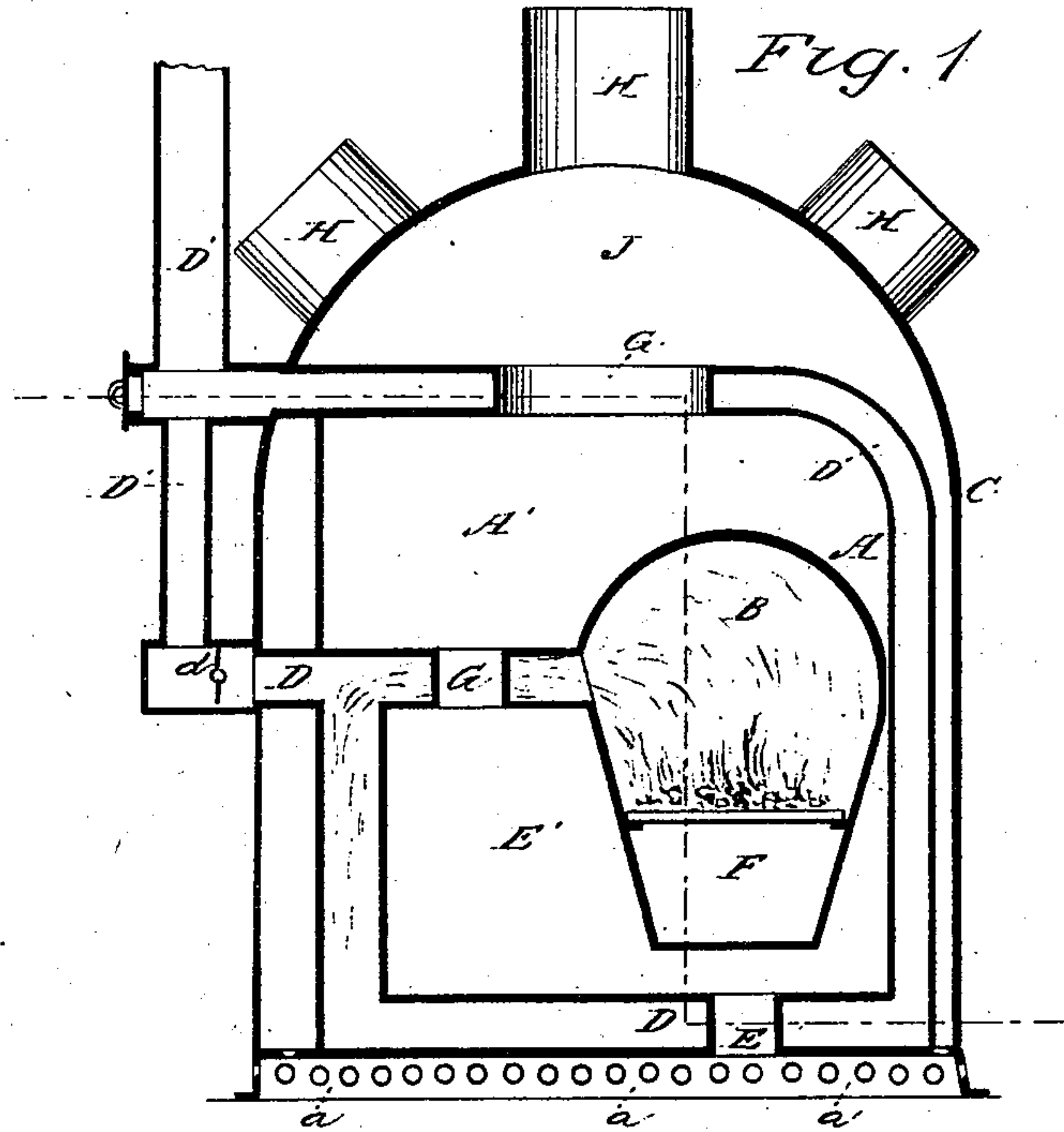


J. S. VAN BUREN.

Hot-Air Furnace.

No. 64,599.

Patented May 7, 1867.



*Witnesses:*

*Theo. Tuschke*  
*Wm. Trewin*

*Inventor:*

*J. S. Van Buren*  
*Per Munn & Co*  
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# United States Patent Office.

J. S. VAN BUREN, OF SOUTH TROY, NEW YORK.

*Letters Patent No. 64,599, dated May 7, 1867.*

## IMPROVEMENT IN HEATING-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. S. VAN BUREN, of South Troy, in the county of Rensselaer, and State of New York, have invented a new and useful Improvement in Hot-Air Furnace; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to the manner in which the heat-radiating surface of a hot-air furnace is increased, so as to utilize the fuel and properly distribute the heated air; and the invention consists in arranging a fire-box within chambers in such a manner that it is surrounded by the air while the heated products of combustion may be made to pass around it on the outside in their passage to the chimney.

Figure 1 represents a vertical central section of the furnace, showing the fire-box and flues, and the air-chambers and air-passages.

Figure 2 is a horizontal section of fig. 1, through the line *xx*, showing a plan of the furnace, the air-flues, &c.

Similar letters of reference indicate corresponding parts.

A represents the furnace proper, containing the fire-box; B is the fire-box; C represents a jacket surrounding the furnace; D D' is the flue through which the smoke and products of combustion pass; E represents the pipes through which cold air enters; F is the ash-pit; G represents air-passages in the furnace, and H represents the pipes through which the heated air is discharged from the furnace; *a* represents small holes through the base of the furnace, which holes are for the admission of air. The furnace may be placed on legs or stands, in which case these holes would be unnecessary. The smoke and heated products of combustion pass from the furnace fire-box directly towards the upright flue D'; but by turning the damper *d*, as seen in the drawing, they are stopped and forced to enter and pass through the flue D, around the fire-box and across the top of the furnace, thus traversing nearly the whole interior portion of the furnace before they pass into the flue D'. The jacket C entirely surrounds the sides and top of the furnace, while the air is admitted into the space between the jacket and the furnace through small holes *b* in the upper part of the base. The air which enters through the pipes E into the chamber E' has free access to all the heat-radiating surface within the chambers E' and A', from which it passes into the hot-air chamber J, and passes out through the pipes H. It will be seen that the air passes over a very large heat-radiating surface, and that as the fire-box and flues are arranged very little of the heat generated can be wasted. It is well known that air is a bad conductor of heat, and that it is necessary for each particle to come in contact with a metallic or other heating surface to render it sufficiently hot for warming purposes. It is of the first importance, then, that the heat-radiating surface should be as large as possible. The superior advantages of this arrangement in this particular will at once be apparent. Suitable apertures are made through the jacket for the introduction of fuel and removal of ashes, and the fire-box is adapted to the use of either wood or coal as fuel.

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

1. The arrangement of the hot-air chambers E', A', and J, in combination with the fire-box B.
2. I claim the flue D, surrounding the fire-box, substantially as shown and described.
3. I claim the jacket C, constructed substantially as described, in combination with the furnace A and the flue D'.

J. S. VAN BUREN.

Witnesses:

HENRY VAN BUREN,  
W. B. MILLS.