C. L. PIERCE.

Hot-Air Furnaces.

No. 138,189. Patented April 22, 1873.

Fig. 1.

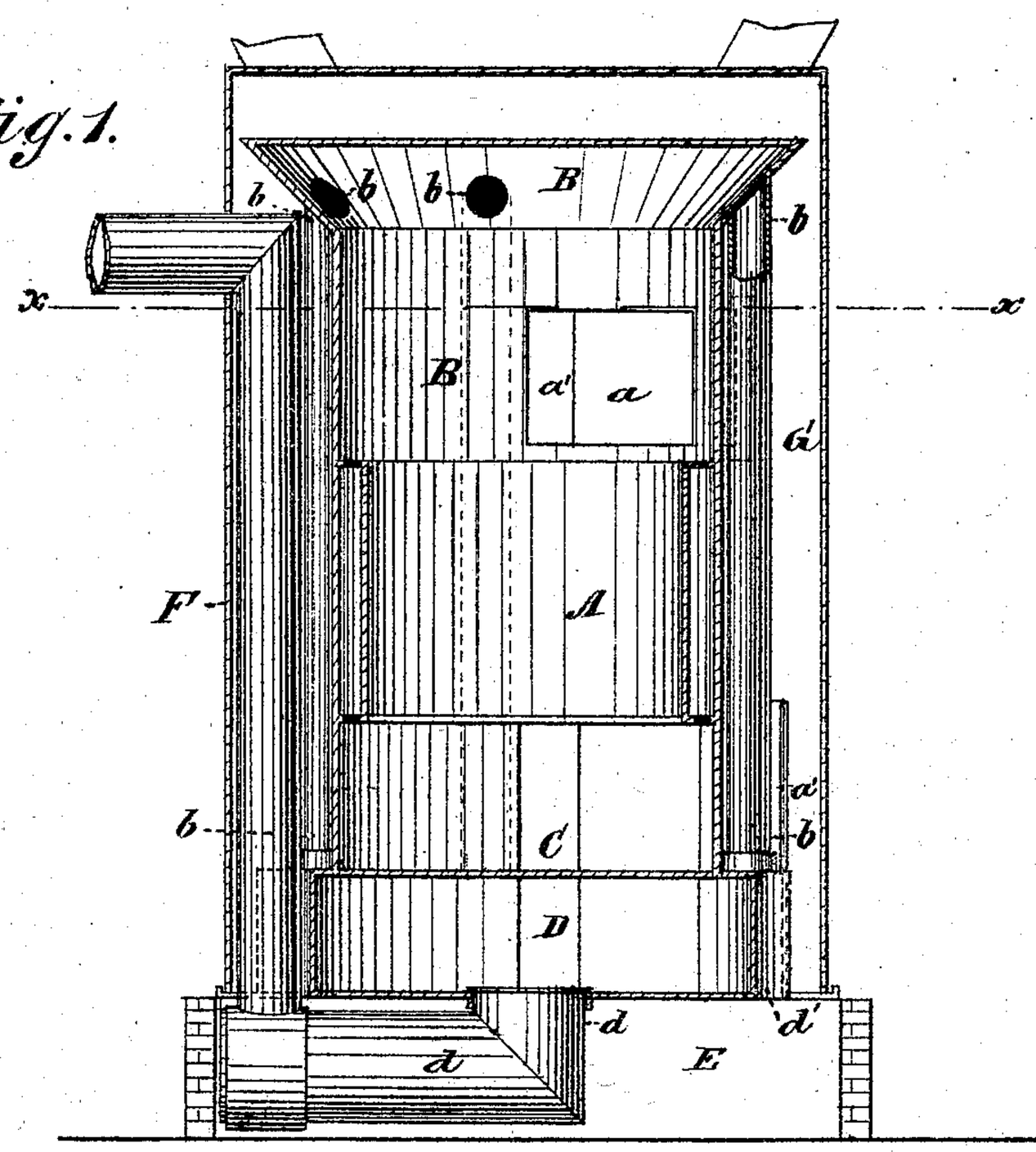
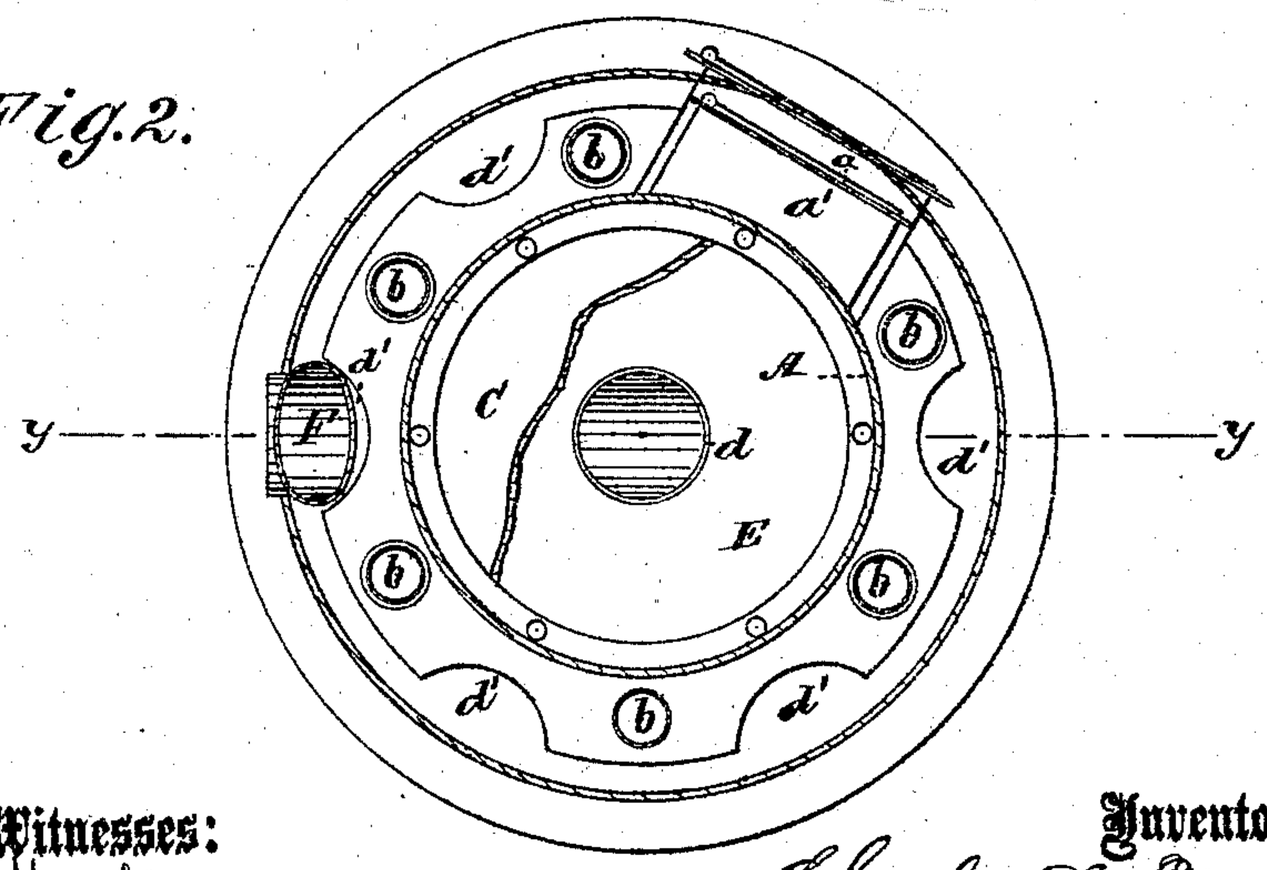


Fig. 2.



Witnesses:
G. Matthys
Solon C. Kemon

Inventor:
Charles L. Pierce
Per Munn & Co
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES L. PIERCE, OF NATICK, MASSACHUSETTS.

IMPROVEMENT IN HOT-AIR FURNACES.

Specification forming part of Letters Patent No. **138,189**, dated April 22, 1873; application filed December 28, 1872.

To all whom it may concern:

Be it known that I, CHARLES L. PIERCE, of Natick, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Hot-Air Furnace; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification.

The invention consists in a furnace having an indirect draft from the top of combustion-chamber through downward vertical flues to a chamber below the ash-pit, and passing thence up through a smoke-flue, said flues being all in the air-chamber. It also consists in an adjustable smoke-flue adapting the furnace to be properly set, no matter what may be the location which it is required to occupy in the cellar or basement. It also consists in the construction of the base of furnace so that the smoke-flue may be conveniently placed within the air-chamber.

In the drawing, Figure 1 is a central vertical section, and Fig. 2 is a horizontal section through line *x x* of Fig. 1.

A represents the fire-pot; B, the combustion-chamber; C, the ash-pit; and D, a chamber under ash-pit. Around the combustion-chamber, and connected with the projecting top thereof, is a series of flues, *b*, which open at their upper and lower ends, respectively, into the projecting top of the combustion-chamber B and hollow chamber D. *d* is a pipe, which is swiveled at one end to turn on the bottom plate of the chamber D, and at the other end is connected with a smoke-flue, F, which passes upward through and out of the air-chamber E at a point near the top thereof. That portion of the bottom plate of chamber D projecting beyond the chamber is notched at suitable intervals to allow of the adjustment of the smoke-flues *d* F into such position with relation to the furnace-door opening as may be required to suit the place of setting. *a* is the door and *a'* the throat of furnace, through which the fuel is supplied to the fire-pot. Between furnace and case is the air-heating chamber G, with the usual hot-air outlets.

The operation is as follows: The heated products of combustion pass to the top of chamber B, and are then drawn down through the vertical flues *b* into the hollow base D. They pass from thence through the central opening into pipe *d*, and fresh-air receiving-chamber E, up through smoke-flue F and are discharged.

By means of the center draft at bottom the fire-pot and combustion-chamber are enveloped with flame, which generates a uniform heat on all sides toward the air-chamber, while the fresh air receives its initial supplies of heat at the lowest point of the furnace and steady increments thereof as it ascends.

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

1. A furnace having combustion-chamber closed, projected at top and provided with pendent flues *b* leading from top down through the air-chamber into a hollow chamber below ash-pit, in combination with the central swiveled smoke-flue *d* and flue F, as and for the purpose described.

2. The arrangement of the smoke-flue F within the air-chamber, in combination with the swiveled connecting-pipe *d*, as and for the purpose set forth.

3. The connecting-pipe *d*, swiveled and arranged to turn, as and for the purpose described.

4. The chamber projecting and notched, as described, to allow the smoke-flue to be placed within the air-chamber.

5. The combination of the descending tubes with the sub-base and central draft at bottom, as and for the purpose set forth.

DR. CHARLES L. PIERCE.

Witnesses:
J. S. EASTMAN, Jr.,
W. W. HEMENWAY.