

J. Amory.
Hot-Air Furnace.

N^o 76136

Patented Mar. 31, 1868.

Fig 1

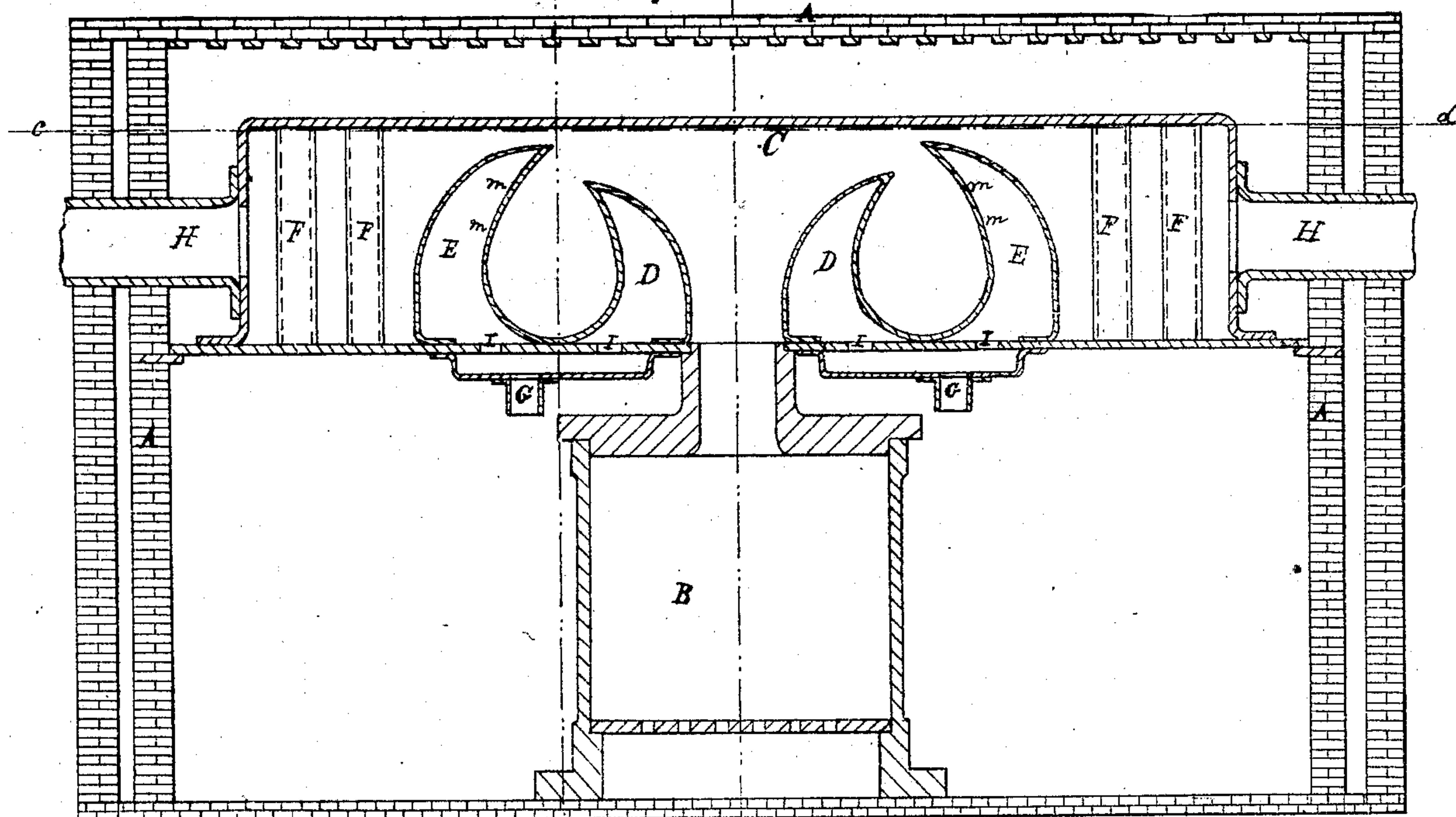
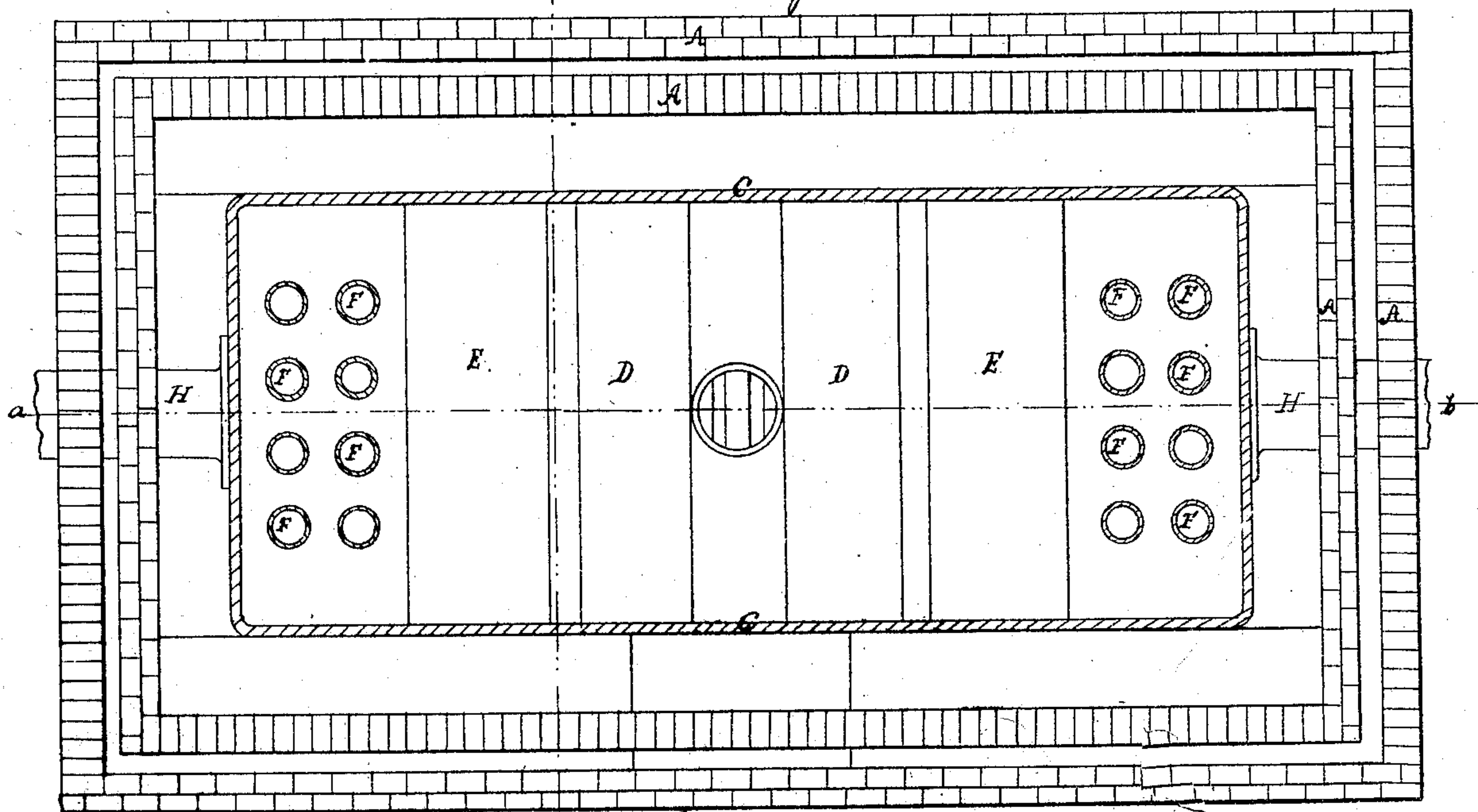


Fig 1.



Witnesses { N. C. Lombard
Chas. A. Jordan

Jonathan Amory Inventor

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Fig 3 Patented Mar. 31, 1868.

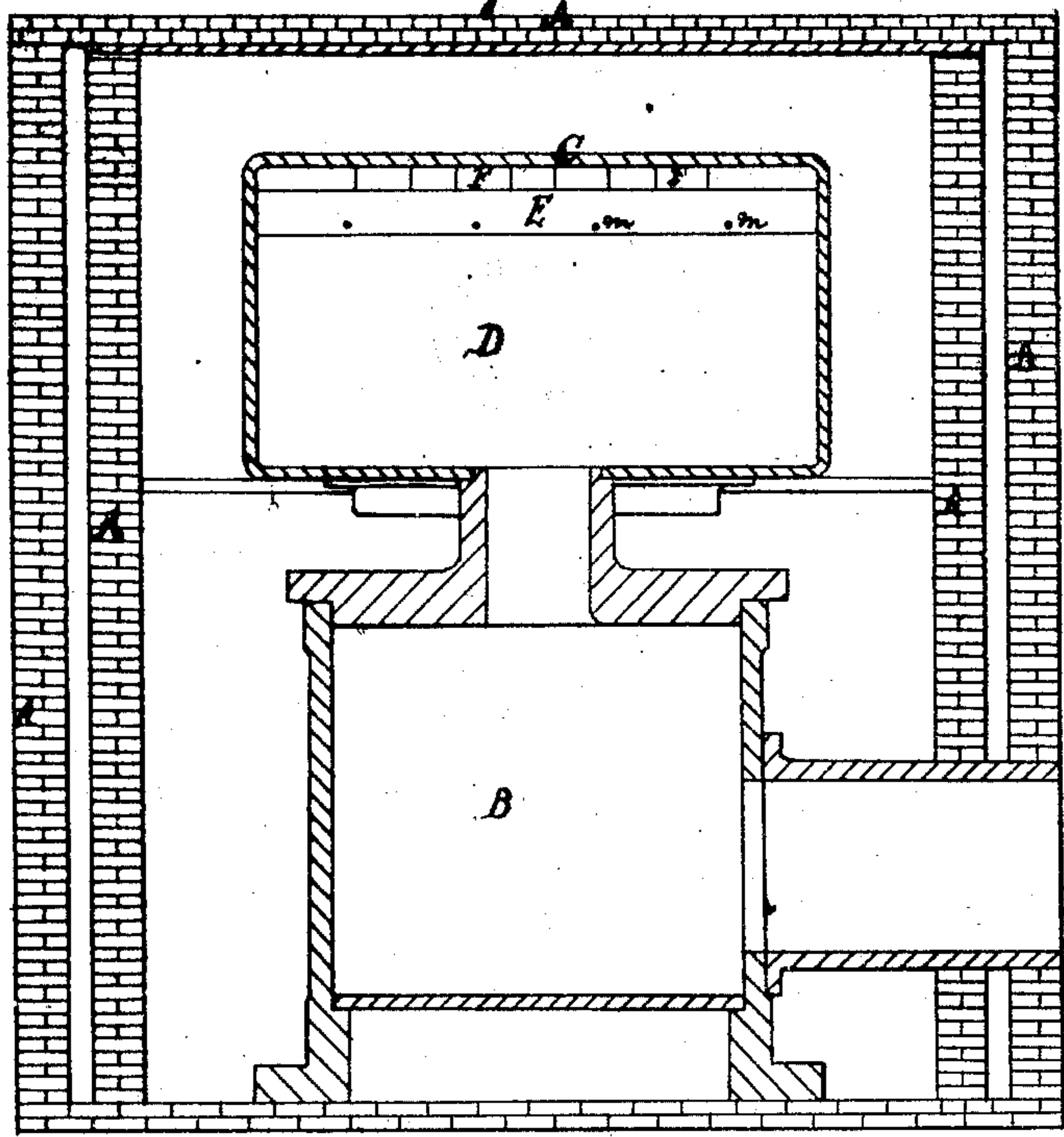
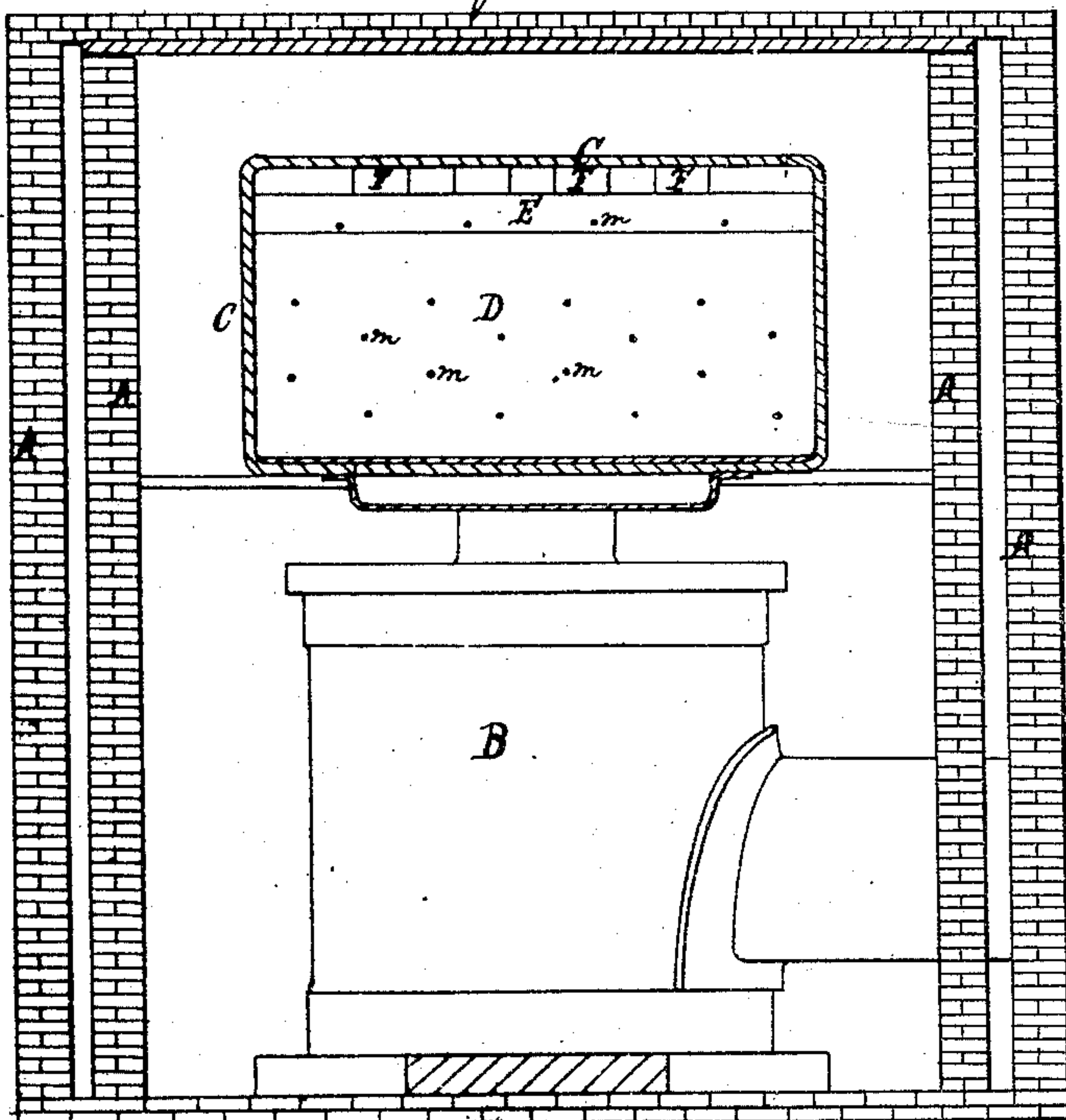


Fig 4.



Witnesses. { N. C. Lombard
 { Chas. A. Jordan

Jonathan Amory Inventor

United States Patent Office.

JONATHAN AMORY, OF WEST ROXBURY, MASSACHUSETTS.

Letters Patent No. 76,136, dated March 31, 1868.

IMPROVEMENT IN HOT-AIR FURNACES.

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, JONATHAN AMORY, of West Roxbury, in the county of Norfolk, and State of Massachusetts, 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, making a part of this specification, in which—

Figure 1 is a vertical section on line *a b* of fig. 2.

Figure 2 is a horizontal section on line *c d* of fig. 1.

Figure 3 is a vertical section on line *e f* of fig. 1; and

Figure 4 is a vertical section line *g h* of fig. 1.

The same letters refer to the same parts in all of the figures.

My invention relates to the manner of combining and arranging the several parts of a furnace so as to accomplish the most economical combustion of the fuel, and also afford capacity to heat or warm a great volume of air to the proper temperature, so that the air shall not be overheated and rendered unfit for respiration.

To accomplish the first-named object, I employ, in combination with the fire-chamber of the furnace, a combustion-chamber, provided with hollow curves, similar to those described in Letters Patent granted to me April 5, 1859, and numbered 23,650, by means of which the unconsumed gases escaping from the fire-chamber are mixed with hot air and their combustion completed; and, also, with a series of vertical heating-pipes which traverse this chamber and are heated by the hot gases after they pass the curves, by means of which a great extent of heating-surface is presented to the air, and an active circulation is maintained past the heating-surfaces, so that the excessive overheating of the air is avoided.

In the drawings, *A A* represents the brick-setting, and *B* the fire-chamber. *C C C* is the combustion-chamber, fitted to the top of the fire-chamber, and supported on the brick walls at either end. It is provided internally with the hollow curves *D D* and *E E* arranged near the flue leading from the fire-chamber, and also with the two series of tubes *F* which traverse the chamber vertically between the curves and the end of the said chamber, and through which the air passes (to heat the same) to the upper side of the combustion-chamber. *H H* are smoke-flues, from which the smoke is conducted to the chimney in any usual manner. The hollow curves *D D* are placed transversely across the combustion-chamber, one on either side of the outlet from the fire-chamber, and with their convex sides towards the same, and the curves *E E* are placed parallel to *D D*, and with their concave sides towards the same. These curves are made of the form shown, of common sheet iron, and hollow, and provided with small orifices, *m m*, from which the air, heated by its contact with the curves, is discharged among the gases that escape from the fire-chamber before being consumed, and, being thoroughly mixed therewith, the combustion of said gases is completed. The curves are supplied with air from the lower air-chamber, through the orifices *I I* and pipes *G G*, as shown in the drawings. The vertical heating-pipes *F* nearly fill the space between the curves *E E* and the ends of the chamber, and as the capacity of that space to discharge a volume of gas is much greater than the flue-space past the curves, the hot gases are very much retarded and thrown into convolutions among the pipes, thus heating them equably, and without danger of overheating or destroying them, so that thin iron pipes may be used, which will transmit the heat with greater rapidity than the thicker heating-surfaces commonly used.

The cold air is admitted to the hot-air chamber through the brick-work near the bottom of the furnace, in the usual manner, and as it is heated it rises, coming in contact with the exterior of the fire-chamber and combustion-chamber, while a large portion of it passes, through the series of tubes *F*, to the top of the enclosed space, and is drawn off as needed to warm rooms, in the usual manner.

What I claim as my invention, and wish to secure by Letters Patent, is—

The combination of the fire-chamber *B*, the combustion-chamber *C*, the curves *D* and *E*, and the heating-tubes *F*, constructed and arranged substantially as described.

Executed at Boston, this seventh day of February, 1868.

JONATHAN AMORY.

Witnesses:

N. C. LOMBARD,

CHAS. A. JORDAN.