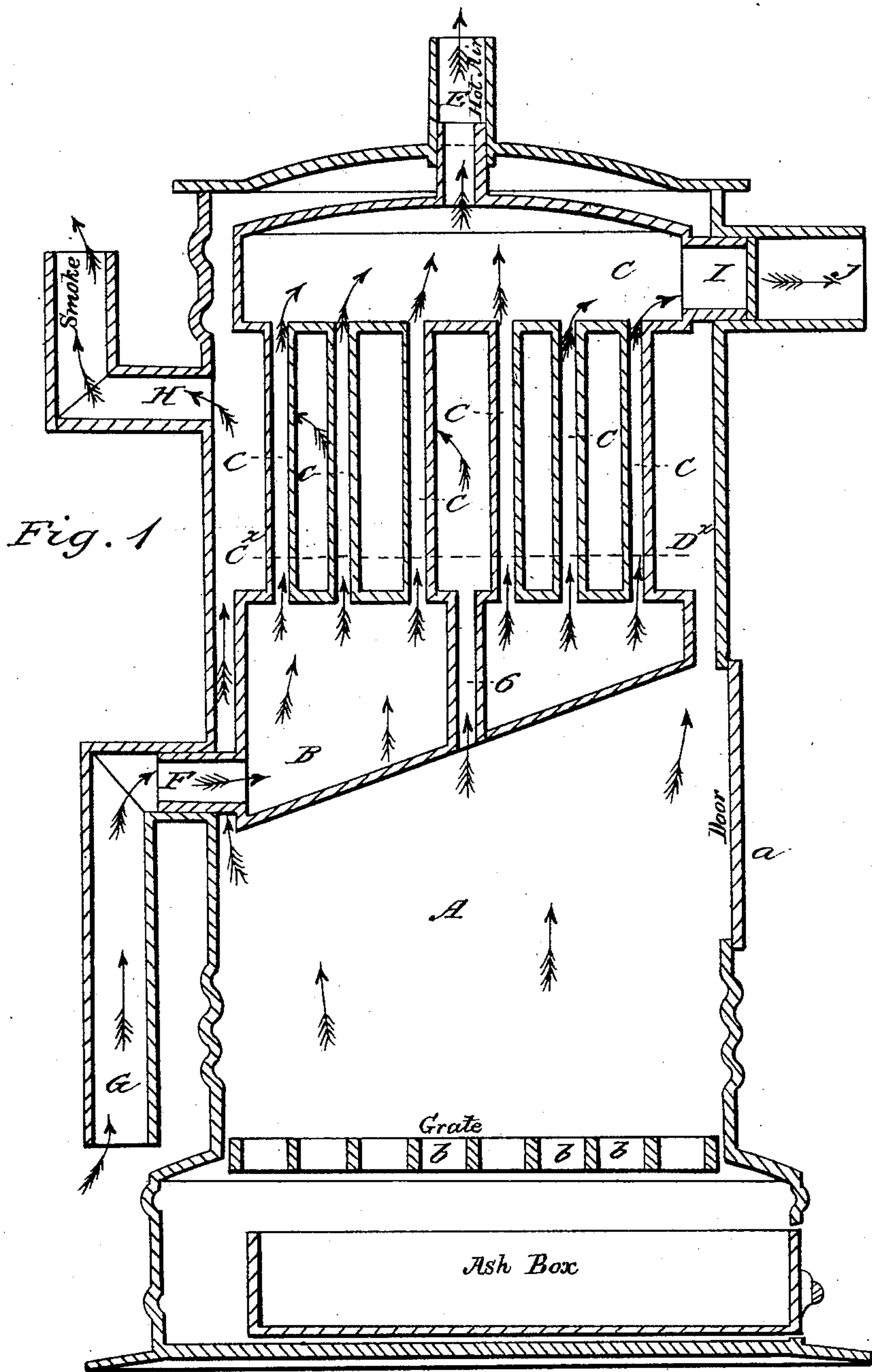


W. BAMFORD.

Heating Stove.

No. 62,726.

Patented March 12, 1867.



Witnesses:

L. L. Bond
C. A. West

Inventor:

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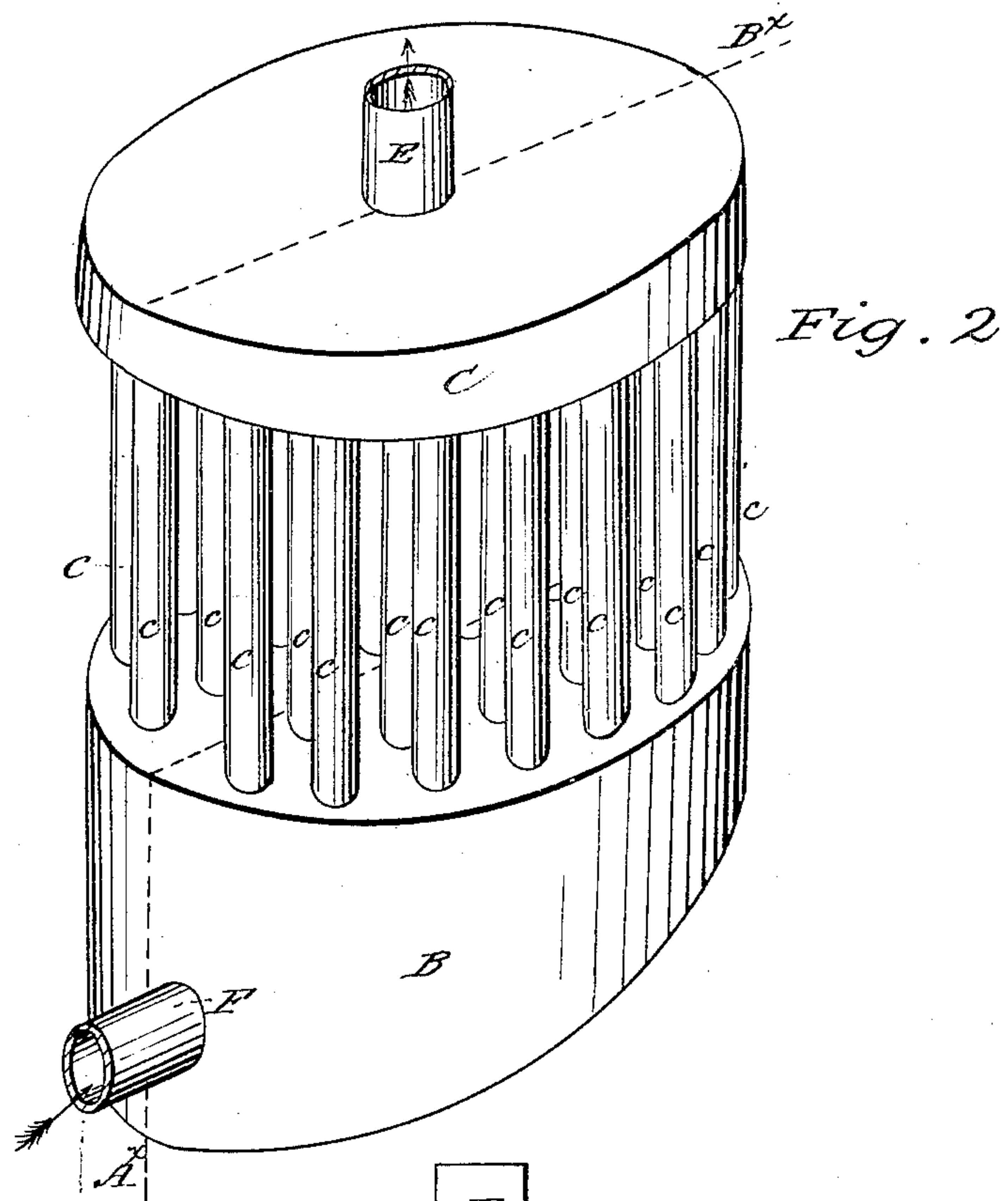


Fig. 2

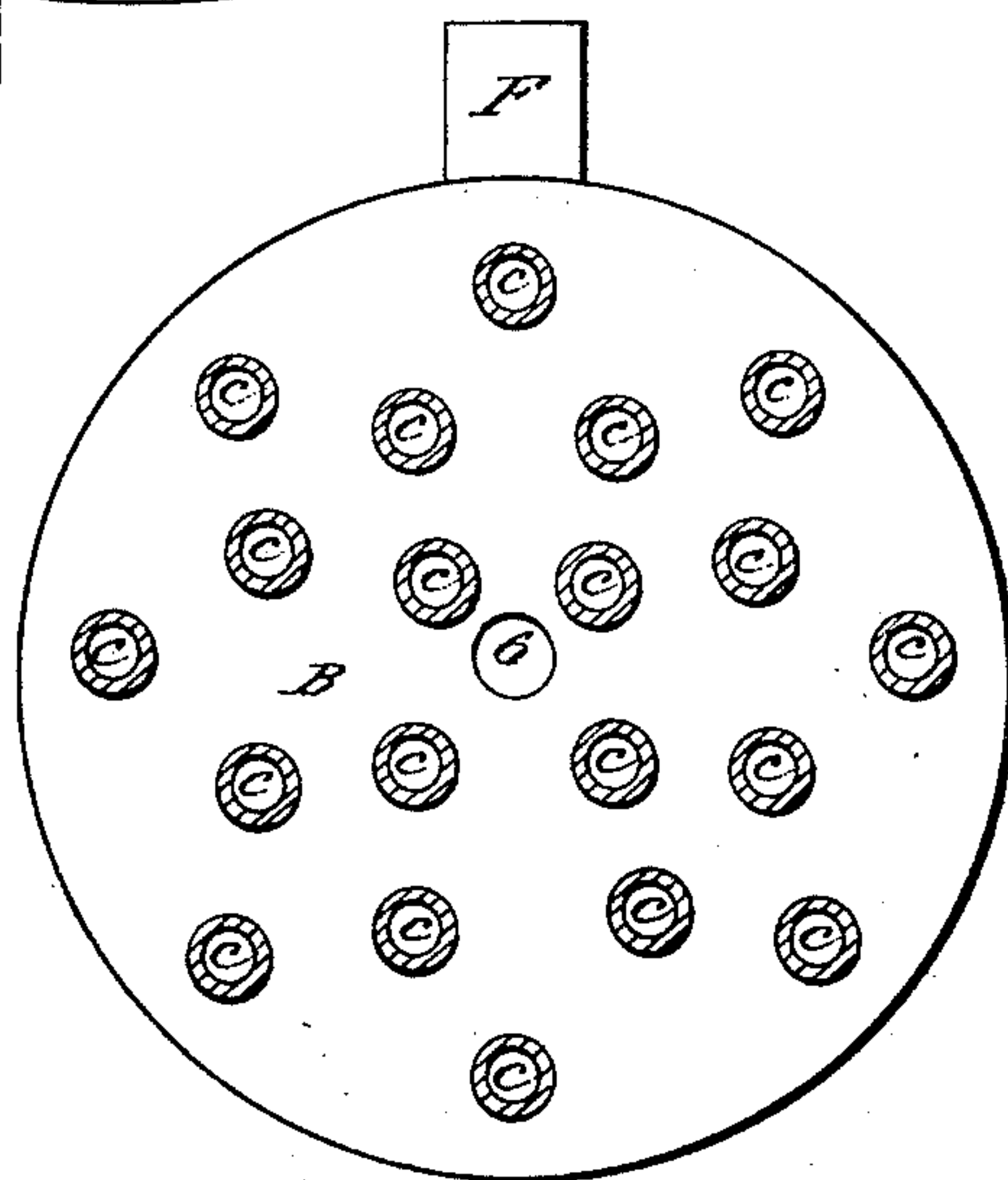


Fig. 3

Witnesses:
L. L. Bond
C. A. West

Inventor
William Bamford

United States Patent Office.

WILLIAM BAMFORD, OF MILWAUKEE, WISCONSIN.

Letters Patent No. 62,726, dated March 12, 1867; antedated September 12, 1866.

HEATING STOVE.

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, WILLIAM BAMFORD, of the city and county of Milwaukee, in the State of Wisconsin, have invented certain new and useful Improvements in Hot-Air Chambers for Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of the chamber and the stove in which it is placed in its proper position.

Figure 2, a perspective view of the chamber detached; and

Figure 3, a transverse section on the line C× and D×, fig. 1.

Like letters refer to similar parts in all of the figures.

The nature and object of my invention consist in constructing an upper and lower air-chamber connected together by air flues, so as to present a large amount of heating surface, through which the air must pass in its passage from its entrance to its exit, and at the same time check the passage of the heat in the stove so as to produce eddies and cross-currents in such stove, by means of which a greater amount of heat is radiated from the stove than would be with the same amount of fuel if the air-chambers were not inserted; and also, by means of the great amount of heating surface presented to the air in its passage, pass it more rapidly through the chambers to the pipes or registers and in greater quantities by means of the rapidity of the currents; and in so suspending the two air-chambers connected by tubes both above the fire-box and so that the heated products of combustion will freely come in contact with all portions of the cylinders and tubes.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The stove A is an ordinary sheet-iron stove, with cast base and cap, but may be made of any material and in any of the forms usually used for stoves designed simply for heating, as my invention may be applied to all heating stoves, except to base-burning ones, where the fuel is above the point of combustion. My combined hot-air chamber, B C, and flues, *c*, are made in sizes to suit the dimensions of the stove to which it is applied, and so made as to leave a space of from one to three-fourths of one inch between the stove A and the chambers B and C. The bottom of the air-chamber B is inclined from the horizontal, as shown for coal stoves and for those where the space between the top of the door and top of the stove is short, otherwise the upper and lower ends of the chamber are parallel. The distance between the plates of each of the cylindrical chambers B and C will in a measure depend upon the height of the stove, as will also the length of the pipes or flues *c*. The plates and bands of the cylindrical air-chambers are usually made of sheet iron, but may be cast, and the lower one of B would perhaps be better made of cast iron, although not necessary. The flues or pipes *c* are made of sheet iron, and are from one to two inches in diameter, and in length to suit the height of the stove. I usually put in as many as can well be put in, leaving spaces of about one-half to three-fourths of one inch between the several pipes.

In operation, the cold air passes into the lower chamber B from the outside, through the pipe F, and, if it is desired to take the cold air lower down, the elbow G is added, but usually it will not be found necessary except when it is desired to carry the hot air some distance, or in a downward direction, through the pipes I and J. When the air enters the chamber B it comes in contact with the heating surfaces of that chamber and then passes through the air flues *c c* and *c* into the upper chamber C, where it is still further heated, when it passes out through the pipes F and I, or either one of them, as may be desired. Both pipes are provided with registers, so that the current of hot air can be passed out at either one, at pleasure, or shut off from both. The heat produced in the stove, with the smoke and other products of combustion, strikes first against the bottom of chamber B, and then passes around between it and the stove A, and then by cross-currents and eddies through and between the air flues *c c* and *c*; and to make this more effective I insert a pipe, 6, through the centre of the lower chamber. The heated currents of the stove pass around and against the upper cylinder C and then out at the smoke pipe H. The combined chambers are supported by the pipes F and I and held in place by the pipe E, which passes through the cap of the stove. It may be further supported by rods attached to it and the stove. In some forms of stoves, particularly the oval form, it will be better to insert two pipes from the outside into the lower cylinder.

This arrangement of cylinder and flues can also be used in the pipe as a damper and air heater with great

advantage, either in addition to one inserted in the stove or when the stove is of such form that it cannot be inserted, as in cooking stoves. When so used the opening at the top will be omitted. I consider this a great improvement over the air heater heretofore patented to me and John F. Tate, as in this there is no choking of the flues.

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

1. The air-heating chamber, composed of an upper and lower cylinder connected by one or more air flues and located entirely above the fire-box, so as to bring all parts of the chamber and flues in contact with the heated products of combustion, substantially as set forth.

2. The combination and arrangement of the upper cylinder C and lower cylinder B, connected by the flue c and located above the fire-box, with the pipe or flue F and the discharge pipe I or E, and stove case A, substantially as specified.

WILLIAM BAMFORD.

Witnesses:

L. L. BOND,

E. A. WEST.