

R. T. Crane,
House Ventilator,
No 76,717, Patented Apr. 14, 1868.

Fig: 1

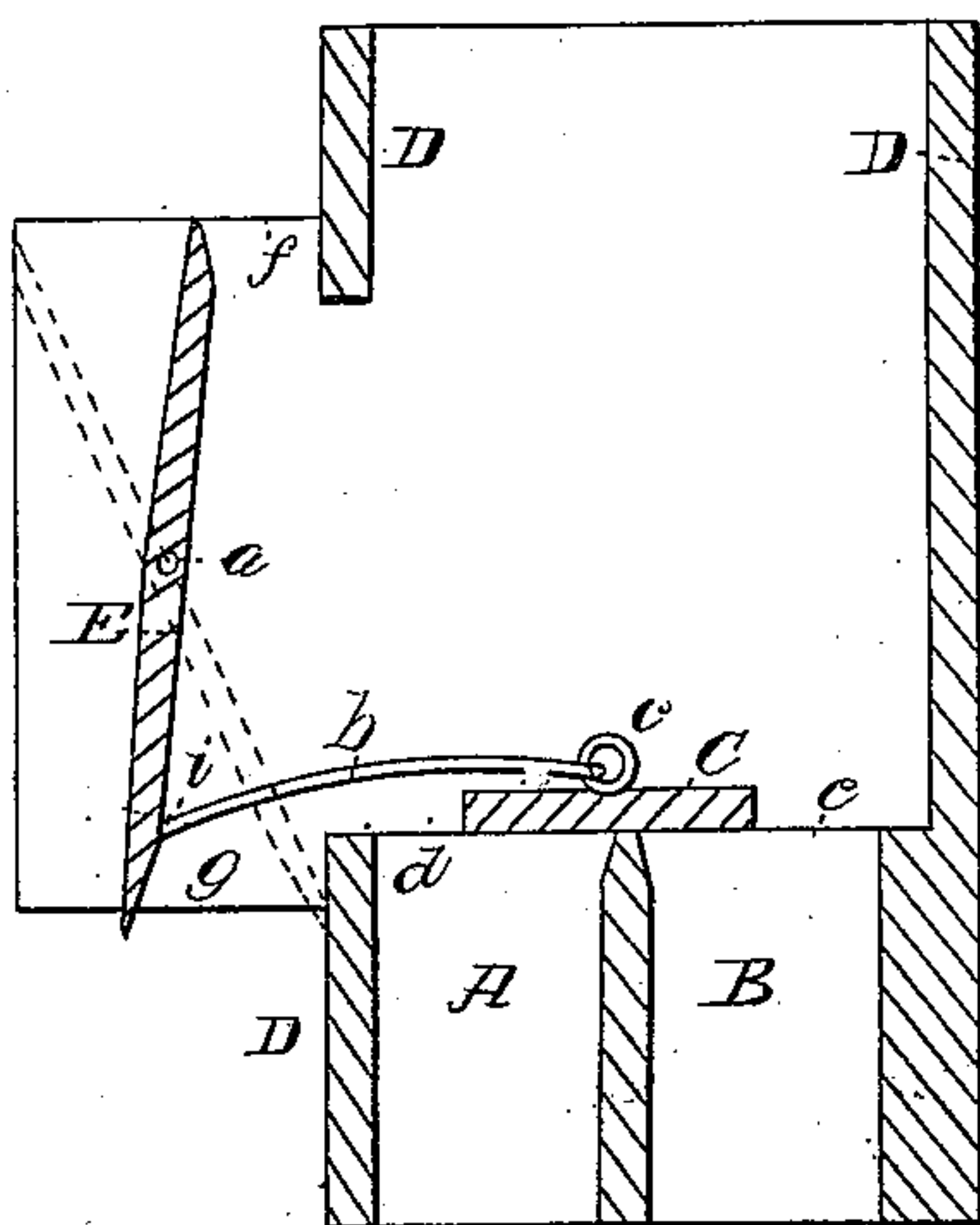


Fig: 2.

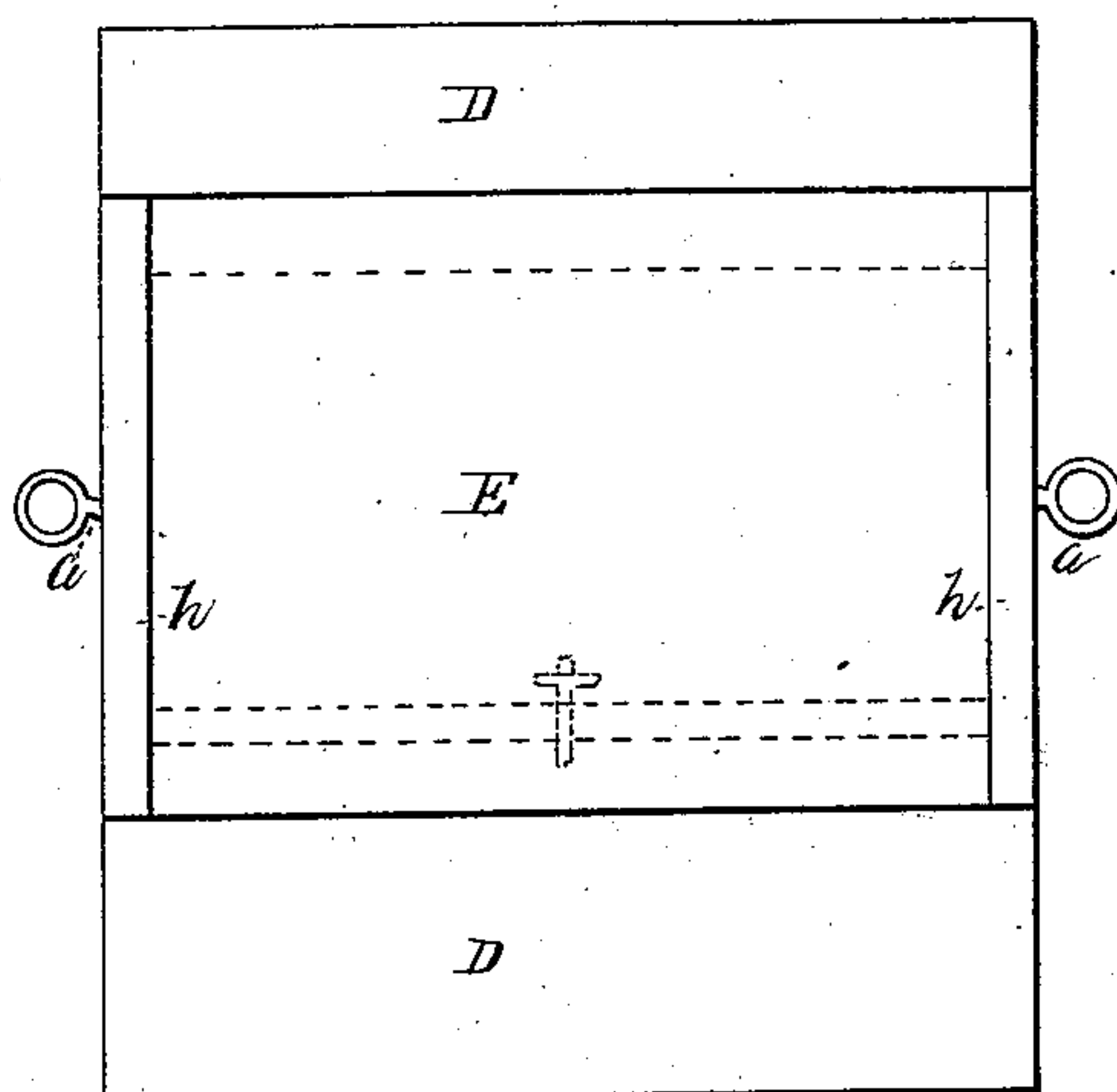
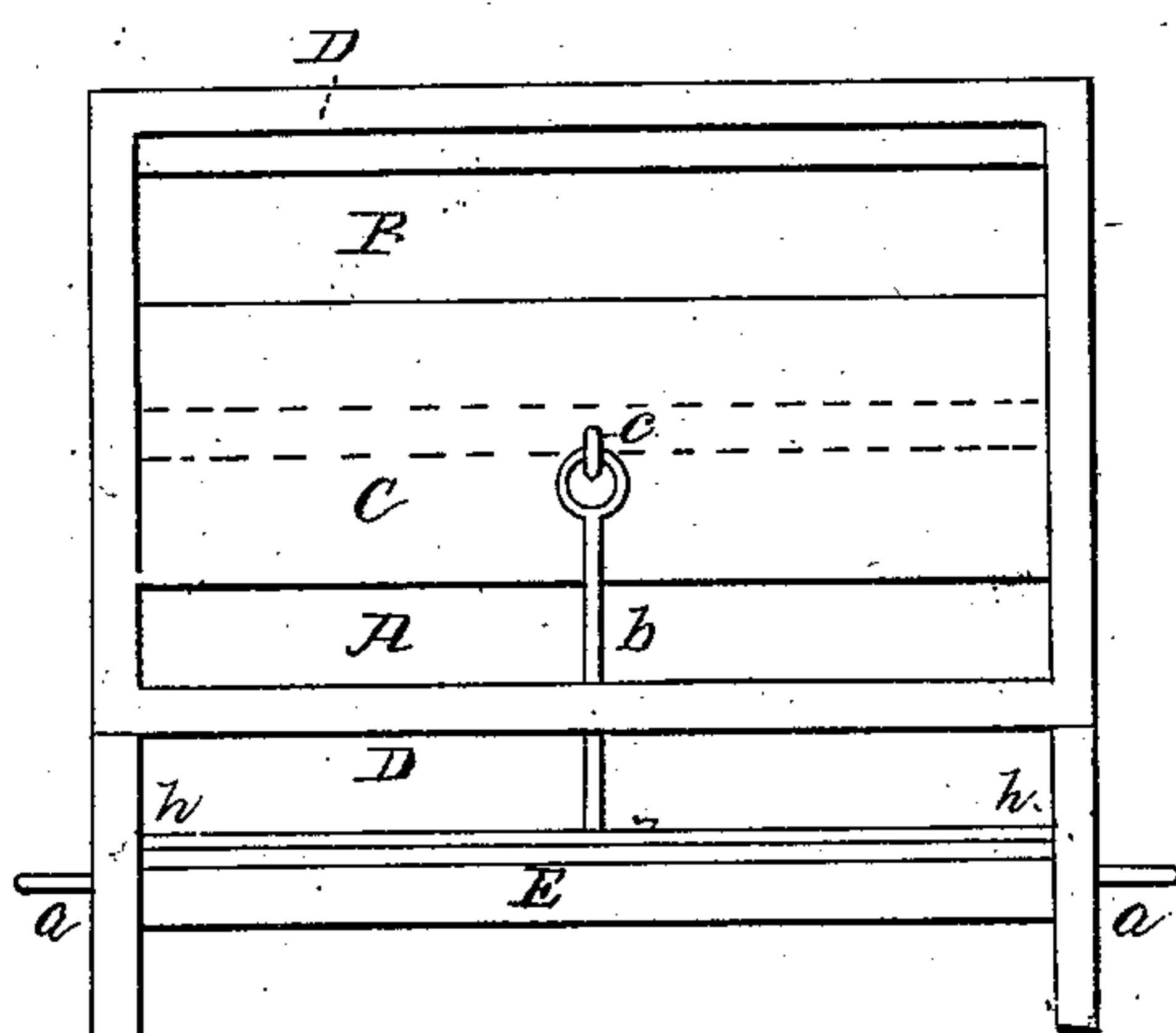


Fig: 3



Witnesses:
Edgar P. Morrill.
E. A. West.

Inventor:
Richard T. Crane.

United States Patent Office.

RICHARD T. CRANE, OF CHICAGO, ILLINOIS.

Letters Patent No. 76,717, dated April 14, 1868.

IMPROVEMENT IN VENTILATORS.

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, RICHARD T. CRANE, of Chicago, Illinois, have invented certain new and useful Improvements in the Mode of Heating and Ventilating Buildings; and I do declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a transverse section.

Figure 2, a front view.

Figure 3, a top view.

It is well known that pure air is essential to health. Hitherto no adequate means of ventilation has been provided for buildings heated by hot air; the supply of pure air being cut off as the hot-air register is closed.

The nature and object of my invention consists in providing a constant supply of pure air, whether the hot-air pipe be open or closed. This I accomplish by carrying into the building or room to be warmed a cold-air pipe, which receives its supply from the source which supplies cold air to be heated, and providing the hot-air pipe and cold-air pipe with a register or registers, so arranged and operated that as fast as one pipe is closed the other will be of necessity opened, so that as the hot-air pipe is closed, or partially closed, the cold-air pipe must be correspondingly opened, and the supply of pure air will be constant. My improvement may be used in any building warmed by the use of hot air, but will be found especially useful in schools and other public buildings.

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

As shown in the drawings, the pipes are carried up in the wall or partition of the building, and the air introduced through the side of the room, though, if desired, the pipes can be so arranged as to introduce the air through the floor.

D represents the wall or partition-walls. A is a hot-air pipe, constructed and arranged in the usual manner. B is a cold-air pipe, which I usually make of the same size as the pipe A. This pipe B is supplied with pure cold air, and has no connection with the hot-air pipe. *h h* are projections, to which the deflector, E, is pivoted, at the points *a a*, in any convenient manner. C is a register. *b* is a rod, attached to the register at *c*, and to the deflector at *i*.

In operation, when the register C is so adjusted as to wholly close the pipe B, the pipe A will be wholly open, and the deflector E will be in the position indicated by the dotted lines in fig. 1. In this position no cold air will be admitted through B, and hot air passing out of the pipe A, at *d*, enters the room over the upper edge of the deflector, at *f*. If, from any cause, it becomes desirable to close or partially close the pipe A, it can be done by changing the position of the deflector; and, as the deflector, E, is connected with the register by the rod *b*, it is manifest that as the pipe A is closed, the pipe B will be opened, so that the open space for the admission of air to the room will be constantly the same, the supply of cold air increasing as the supply of hot air decreases. When the position of the register is such as to leave both pipes partly open, as shown in the drawings, cold air passes in from B, at *e*, and hot air at *d*, and both pass into the room at *f* and *g*. When the hot-air pipe, A, is wholly closed, the pipe B will be entirely open, and the opening will be closed by the deflector; cold air only will then be admitted through *g*.

It is obvious, that when this device is used, the supply of pure air does not depend on the will of the person in charge of the room, that it cannot be cut off by mistake, and that such supply must be constant.

I do not confine myself to the manner of operating the register above described, nor to the use of a sliding register. The deflector may be dispensed with, and registers of various forms, and any convenient mode of operating the same, may be used. Neither is it necessary that the two pipes A and B enter the room at the same point, though it will usually be most convenient so to arrange them. For convenience, the drawings show the space above the pipes A B open at the top, though in use it will be closed. The pipes A B may be each

provided with a register independently operated, and the object of my invention thus attained, though not with the same certainty as by the method described.

I am aware that deflectors have been heretofore used, but not centrally supported.

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

1. The cold-air pipe B, in combination with the hot-air pipe A, substantially as and for the purposes specified.
2. The air-pipe B, in combination with the pipe A and register C, substantially as and for the purposes specified.
3. Providing the hot and cold-air flues A B with a register, so constructed and operated that when one flue is closed, or partially closed, the other will be correspondingly opened, substantially as and for the purposes specified.
4. The deflector E, in combination with the register C, constructed and operating substantially as and for the purposes specified.
5. The deflector E, constructed and operating substantially as and for the purposes specified.

RICHARD T. CRANE.

Witnesses:

EUGENE P. MORSE,
E. A. WEST.