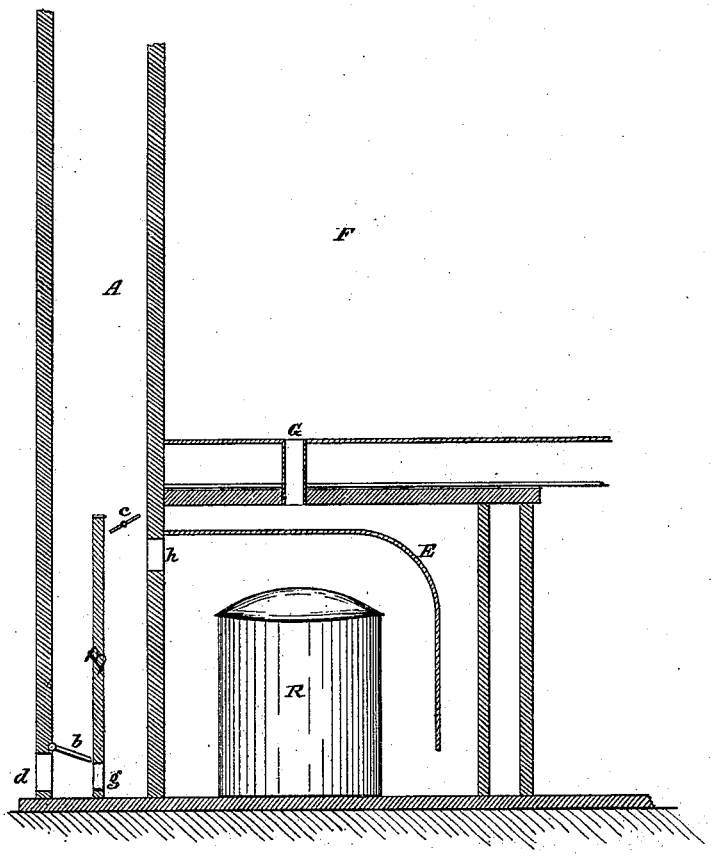
W. Ennis,

Ventilator.

No. 110,838. Patented Jan. 10, 1871.



Witnesses.
Edmd. Thornton
C. Rogers

Inventor:
William Ennis

UNITED STATES PATENT OFFICE.

WILLIAM ENNIS, OF NEW YORK, N. Y.

IMPROVEMENT IN VENTILATORS.

Specification forming part of Letters Patent No. **110,838**, dated January 10, 1871.

To all whom it may concern:

Be it known that I, WILLIAM ENNIS, of the city, county, and State of New York, have invented a new and Improved Method of Warming and Ventilating Buildings; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, forming a part of this specification, and to the letters of reference marked thereon.

The nature of my invention consists in the employment of a jacket or casing over a heating-furnace, composed of such material as is best adapted to the radiation of heat, when it is desired to heat or warm the room, and of such shape or form as will be hereinafter more fully explained.

My invention is equally useful as a ventilator, and is changed from use as a heater by means of valves, so that by the use of my invention I am enabled to heat or warm buildings in the winter and ventilate the same in summer, and discharge all foul and vitiated air from large assembly-rooms at any season of the year.

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

The figure represents a sectional elevation of my improvements, showing the position of the valves.

A is the flue or shaft for receiving and discharging air, made of suitable dimensions, and extending to the top of the building.

Within this shaft and extending upward from the bottom of the same a proper distance is a partition wall, B, for the purpose of changing the direction of the draft.

R is the furnace or radiator, which may be of any of the forms or kinds in ordinary use.

Over this furnace is a jacket or case, E, made of sheet-iron or other material adapted for the radiation of heat, or through which the heat rays will pass freely, which said case or jacket surrounds the furnace and extends to within a short distance from the bottom of the same, and is for the purpose of bringing the air to be heated into contact with the surface of the furnace.

F represents a portion of the room which is to be warmed or ventilated.

d is a valve or opening located near the bottom of the shaft A, for the purpose of admitting air into the same from the outer atmosphere.

b is a valve for the purpose of regulating the current of air descending the shaft A or entering the same through the valve or opening *d*.

c is a valve located between the partition wall B and the inner wall of the shaft A, which said valve *c* is opened when the room is to be ventilated.

When it is desired to warm the room F, the valves *d* and *c* are closed and the valve *b* is opened, in which case the cold air rushes down the shaft A and passes through the openings *g* and *h*, from whence it passes into the space between the furnace R and jacket E, where it is heated, and then passes underneath the edge of the jacket, which, as already mentioned, extends nearly to the bottom of the furnace, and thence upward into the room through the flue or pipe G.

To ventilate the room the valves *d* and *b* are closed and the valve *c* is opened, in which case the draft or current will be downward through the flue or pipe G and upward over the furnace and within the shaft A, so that the heated or vitiated air will be conducted into and will ascend the same.

It will be seen that the outer air may be admitted through the valve or opening *d*, if desired, in which case the valves *b* and *c* are closed, and the cold air passes through the openings *g* and *h* into the space between the furnace and the jacket, and after being heated ascends through the pipe or flue G into the room.

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

The shield or jacket E over the hot-air furnace, when arranged relatively to the air-passage *h*, as and for the purposes set forth.

WILLIAM ENNIS.

Witnesses:

JOHN S. THORNTON,

C. ROGERS.