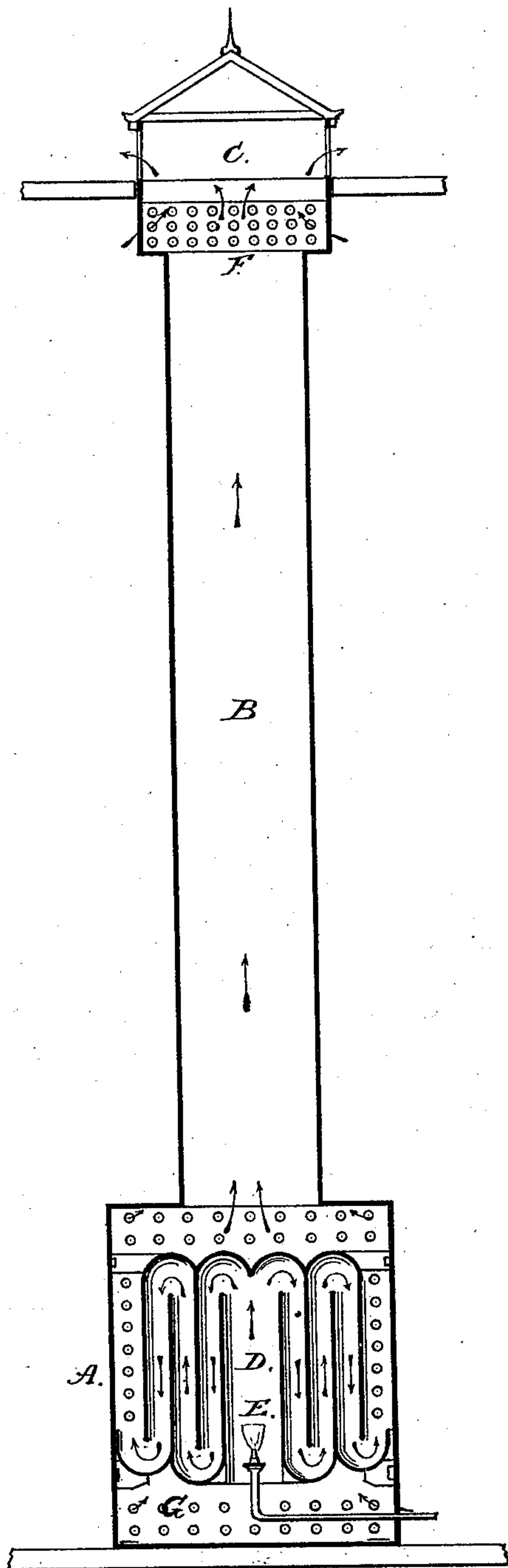


E. J. MARTIN.  
VENTILATION OF BUILDINGS.

No. 176,751.

Patented May 2, 1876.



Witnesses;  
H. W. Howard  
H. P. Bell

Inventor;  
E. J. Martin.

# UNITED STATES PATENT OFFICE

EGBERT J. MARTIN, OF NEW YORK, N. Y.

## IMPROVEMENT IN VENTILATION OF BUILDINGS.

Specification forming part of Letters Patent No. **176,751**, dated May 2, 1876; application filed March 23, 1876.

*To all whom it may concern:*

Be it known that I, EGBERT J. MARTIN, of the city and State of New York, have invented a new and Improved Ventilating Apparatus intended for the ventilation of large halls, buildings, &c., of which the following is a specification:

The drawing represents a vertical section of my improved apparatus.

In all buildings, large halls, and churches, the air is largely vitiated by the breath of individuals. The chief impurity is recognized as carbonic-acid gas, which, being heavier than atmospheric air, has a tendency to remain in the lower part of the room. Any correct system of ventilation should aim at drawing off the heavier gases at the bottom of the room as well as the warmer air and lighter gases at the top when required. In my appliance I combine these upper and lower drafts, and for this purpose construct a metal chamber, marked A, placed in the wall, or in any portion of the room designed to be ventilated. This chamber, which I use as a heating or vacuum chamber, may be placed on the outside of the wall and connected with the room or rooms to be ventilated by a foul-air duct or ducts of wood or sheet metal. At the top of this vacuum or heating chamber is connected a vertical exhaust-flue, B; and at the top of the room, just below the ceiling, I increase the size of exhaust-flue B, as represented by section C. In this enlarged flue C is an ordinary valve-register, worked with a cord.

The tin flue B and C may be brought out at the eaves of the roof, or may be extended to any height or point of outlet. This enlargement of the flue B at C is intended to accommodate the air passing in at register F, and without obstructing the air entering at register G.

Inside of chamber A is a radiator, D, made

of sheet copper, of any size or shape to conform to the chamber A. This radiator is made of copper because of its superior qualities as a conductor and radiator of heat. Under this copper radiator I place a Bunsen burner or ordinary lamp, so that the heated products of the combustion will be thrown off or radiated from its sides into hot-air or vacuum chamber A, thereby expanding the air in that chamber, which air immediately rushes off through exhaust-flue B and C to the place of exit outside of the building, its place being rapidly supplied by the foul air made to enter through register G. This register G may be placed in front of radiator D, and thus form one of the faces of chamber A, as in the drawing; or it may be placed in a remote part of the floor of the room to be ventilated, and connected with vacuum-chamber A by a foul-air duct; or a number of registers and foul-air ducts may connect with this chamber, the number and size being governed by the size of the vacuum-chamber A and the capacity of the burner and radiator to expand the air in the chamber.

The air from the bottom of the room is forced into vacuum-chamber A by the power of vacuum. The air at the top is pumped in through register F by the rarefied air or current passing through exhaust-flue B and C, enlarged as shown.

I claim—

In combination with the flue B, extended and enlarged, the vacuum-chamber, provided with the copper radiator and the burner E, together with suitable valve-registers for both vacuum-chamber and flue, arranged and constructed substantially as described.

E. J. MARTIN.

Witnesses:

F. M. DRANEY,  
J. W. LYNCH.