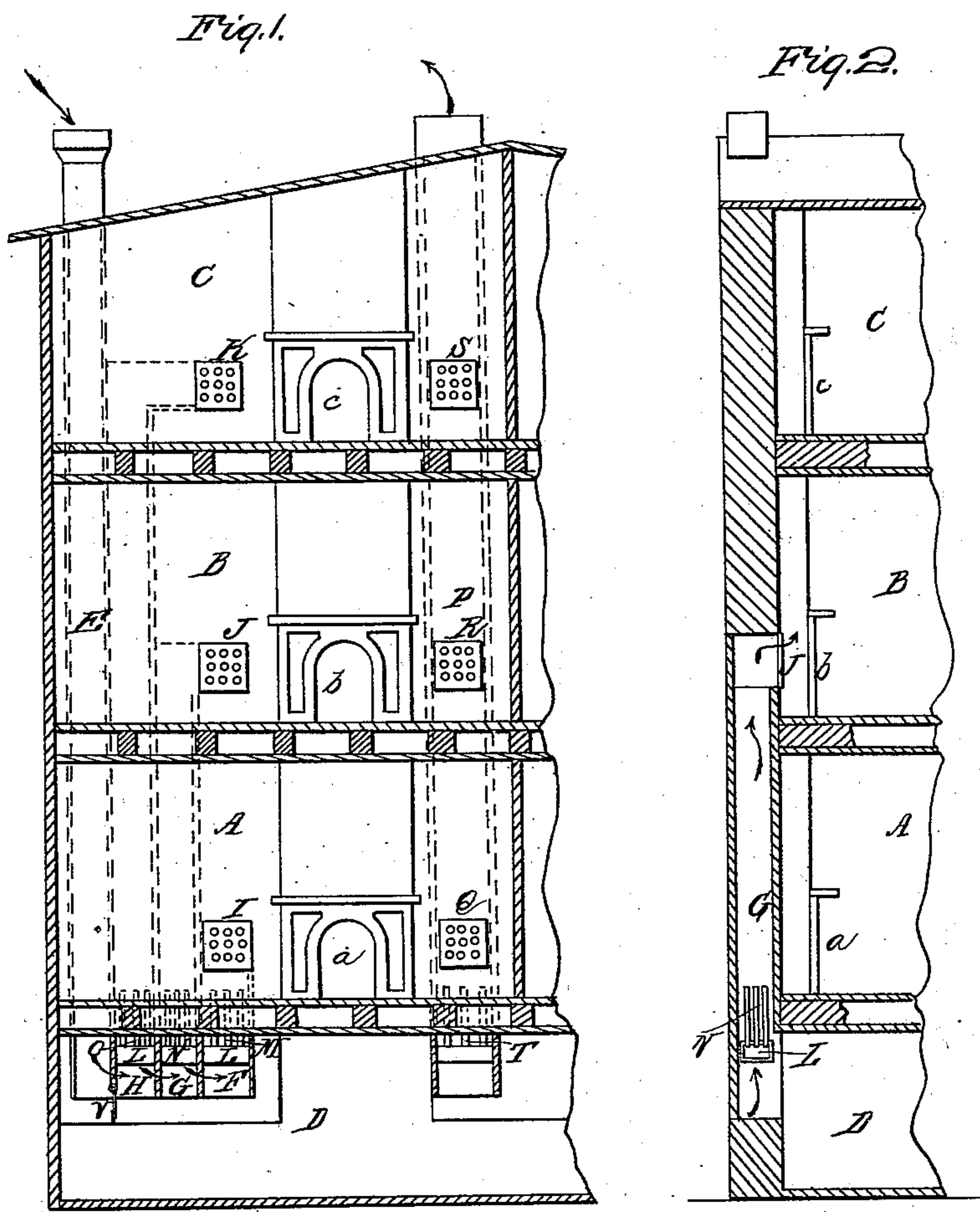


G. W. Blake,
House Ventilator,
N^o 84,608. Patented Dec. 1, 1868.



Witnesses:
Abell
E. P. Gray

Inventor:
Geo. W. Blake

United States Patent Office.

GEORGE W. BLAKE, OF NEW YORK, N. Y.

Letters Patent No. 84,608, dated December 1, 1868.

IMPROVEMENT IN VENTILATION.

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, GEORGE W. BLAKE, of the city, county, and State of New York, have invented a new and useful Improvement in Apparatus for Warming Buildings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figures 1 and 2 represent sectional elevations, at right angles to each other, of a building, in part, with my improvement applied thereto.

My invention consists in the arrangement of radiators within the flues, which serve to conduct the heat from a warming-apparatus to the several rooms or stories of a building, whereby a more equable distribution of the heat through the several stories is obtained, and the often inconvenient and unsightly disposition of the radiators within the rooms themselves is avoided. Said invention also embraces, in combination with such an arrangement of radiators, a valve to the fresh-air shaft, at or near its base, and arranged to admit a downward current through said shaft, but to automatically close against an upward one or rush of air down the room-flues to and up the shaft, by the heating of the air therein, as hereinafter referred to.

Referring to the accompanying drawing, A, B, and C represent first, second, and third-floor rooms of a building, and D, a cellar or basement thereto, in which may be heated the boiler or furnace for warming and ventilating the building, but which it will here suffice to refer to as a steam-boiler, though a hot-air heater may, if desired, be substituted.

E is the shaft for conveying cold air from above to the basement D, or chamber located therein, and connecting with flues F G H, which communicate, respectively, with the several rooms A, B, and C, through registers I J K, arranged, for instance, on one side of fire-places *a b c*, supposing the rooms to be provided with such.

Steam is conveyed from the boiler to a box or boxes, L, located in or near the bottoms of the flues F G H, and connecting or communicating with radiators M N O, of sheet, tubular, or other form, arranged within the flues F G H.

By this disposition of the radiators, that is, within the flues themselves, a more equable distribution of heat to the several rooms or stories is obtained, inasmuch as the cold or fresh air supplied by the shaft E, and which is warmed or heated by its passage round or through the radiators, is not concentrated in a single

flue, and from thence drawn off or distributed to or within the different rooms by the registers located therein, which system of warming causes the greatest heat to collect and be distributed in the upper rooms, but by each, say, of the separate room-flues F G H, having a radiator within it, the fresh air supplied by the shaft E is equally, or thereabouts, and separately heated within the room-flues F G H, in its passage to or up the latter, each room thus drawing an independent supply of heated air, through its register, from its respective flue, separately heated, as described, instead of from a flue common to all. Furthermore, by the arrangement of the radiators within the room-flues, while each room may be said to have a separate radiator, the same, by being disposed within the room-flue, presents no unsightly appearance, but is concealed, and is out of the way, thereby giving more room in the apartment.

P is the usual escape or foul-air shaft, common to all the rooms, and communicating with the several apartments, by registers Q R S; also in which a radiator, T, may be arranged, to establish or quicken the upward current of air entering from the basement.

To prevent an upward current being established through the cold or fresh-air shaft E, by rush of air from or down the room-flues F G H, on opening the registers I J K, which is apt to occur after the registers have been long closed, and the lower portion of the shaft E become unduly heated by the radiators, I provide said shaft E, at or near its base, with, or otherwise equivalently arrange, a valve, V, hung to operate automatically, so as to exclude an upward current through the shaft E, but freely admitting of a downward one therethrough, as and for the purpose hereinbefore set forth.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The arrangement of radiators within the room-flues, substantially as and for the purpose or purposes herein set forth.

2. The combination, with the fresh-air shaft, and radiators arranged within the room-flues, as described, of a valve, operating automatically, to prevent an upward current being established through said shaft, but freely admitting of a downward one through the same, essentially as specified.

GEO. W. BLAKE.

Witnesses:

A. LE CLERC,
ED. P. TRACY.