W. F. FLAGG.

HEATING AND VENTILATING BUILDINGS.

No. 191,952. Patented June 12, 1877.

Fig. 1.

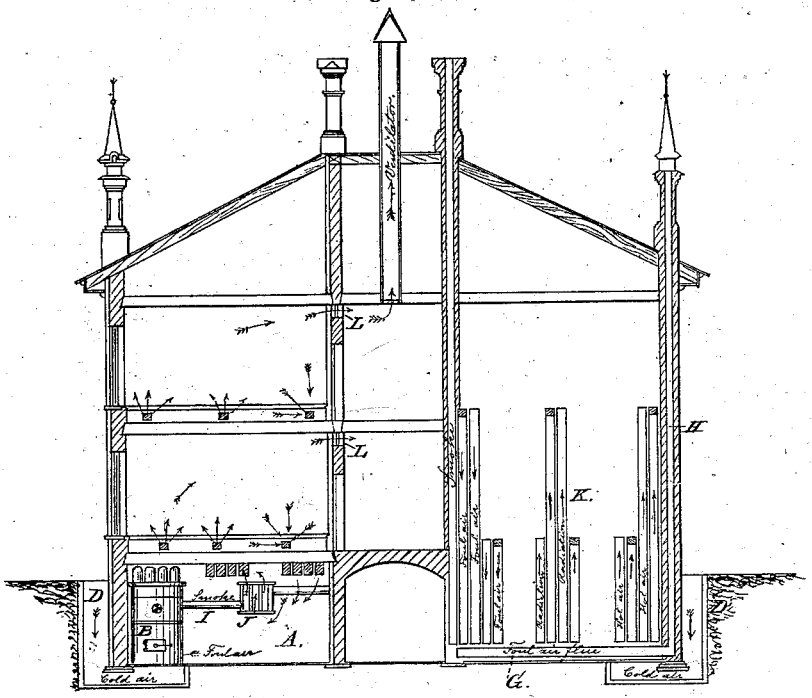
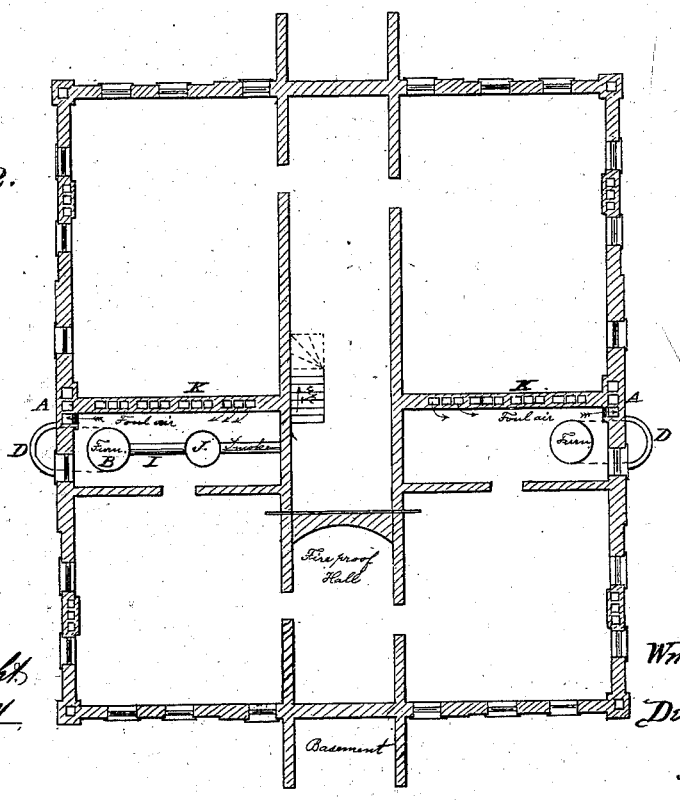


Fig. 2.



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UNITED STATES PATENT OFFICE

WILLIAM F. FLAGG, OF BLOOMINGTON, ILLINOIS.

IMPROVEMENT IN HEATING AND VENTILATING BUILDINGS.

Specification forming part of Letters Patent No. **191,952**, dated June 12, 1877; application filed May 25, 1877.

To all whom it may concern:

Be it known that I, WILLIAM F. FLAGG, of Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Method of Heating and Ventilating Buildings; and I do hereby declare that the following is a full, clear, and exact description, reference being made to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a vertical section of a building containing my improvements. Fig. 2 is a horizontal section of the same.

My invention relates to improvements in the method of heating and ventilating buildings; and it consists in passing the heated air from a furnace directly through pipes or flues to the room or rooms to be heated, the cool and foul air being returned through flues to the furnace-room, where the heaviest or impure air is discharged through an exhaust-flue at or near the bottom of the furnace-room into the open air, and the better portion of the air returned to the furnace-room—viz, the lighter air—is warmed by the furnace, smoke-pipe, and drum, which then rises through separate radiating-flues and returned to the room or rooms being heated, all as will be hereinafter fully described.

A in the drawing represents the furnace-room, and B represents the furnace located therein, which is provided with an iron or brick surrounding jacket. The air is received through the cold-air duct D, and coming in contact with the furnace is heated, and passes up between the furnace and its jacket through conducting-pipes and registers into the room or rooms desired to be heated, in the usual manner. When the warm air is discharged into the room or rooms to be heated the cooler air already in said room or rooms must be expelled or drawn out, to give place to the warm or heated air. This is accomplished through registers located in the base-boards at the bottom of the room or rooms to be ventilated or heated, said registers connecting with foul-air shafts or pipes constructed in the walls or partitions of the building, and through these foul-air shafts or pipes the heavier (which is the cooler and most impure—air descends, and is conducted to the furnace-room, (as indicated by the arrows,) and from which the heaviest and most impure air is drawn out through the exhaust-flue G, communicating with the furnace-room near the bottom thereof. Said exhaust-flue is located contiguous to, or built in connection with, the smoke-flue H, so that it is heated from said smoke-flue, whereby the air becomes rarefied, which causes its ascent, thus facilitating the exhaustion of the foul air from the furnace-room into which it has been drawn, as above described. The better portions of the air which has been drawn into the furnace-room from the room or rooms being heated is warmed by the furnace, the smoke-pipe I, and drum J, and then rises through what is termed "radiating-flue" K again into the upper room or rooms, to be returned again through the foul-air shafts or pipes into the furnace-room, from which the heaviest portions are expelled through the exhaust-shaft into the open air, while the better and lighter portions of the air are again warmed from the heat passing off from the furnace, pipe, and drum, and again returned to the room or rooms, thus furnishing a continuous supply of fresh heated air from the furnace, and radiated heated air from the furnace-room.

It will therefore be perceived that my method combines the furnace system of heating rooms with the stove system, or as if the air of a room was heated by a current of freshly warmed air coming from out of doors, passing and coming into contact with a furnace in the usual way, and then being thrown into the room to be heated, and at the same time heated, as it were, from a stove in the room. The stove in a room, however, heats the air over and over again, and keeps up a constant circulation of the same air, which in a crowded room becomes vitiated if not allowed to escape.

By my method I bring into the room or rooms to be heated the pure air direct from the furnace, and also utilize over and over again the better portions of the air which are passed from the room or rooms being heated into the furnace-room, where it is subjected to radiated heat, while the heavier portions of the foul air are discharged into the open air through the exhaust-shaft.

Another feature of my invention is to obvi-

ate the necessity, in case the room or rooms are too hot, of opening the windows and subjecting the occupants to drafts of cool air. This is accomplished by opening the transoms L over the doors leading to the hall, and having said halls connected by stairways and openings communicating with the dome or belfry, or other shaft communicating with the open air from the top of the building. This, in connection with my method of heating by radiation and by furnace-heat, combines the best results, as regards economy, facility of heating, ready change of air, and complete ventilation.

I am aware that returning the heated air from a furnace, after passing from the room or rooms being heated, back again to the furnace, and again through the room or rooms, is old, and such I do not claim as my invention; but

I claim as my invention—

The method herein shown and described for heating and ventilating buildings, consisting in passing the fresh heated air from the furnace direct to the room or rooms being heated, and returning it to the furnace-room, from which the foul air is discharged into the open air, while the better portions of the air are subjected to radiated heat, and again returned to the room or rooms being heated, substantially as specified.

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Witnesses:
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