No. 834,927. PATENTED NOV. 6, 1906.

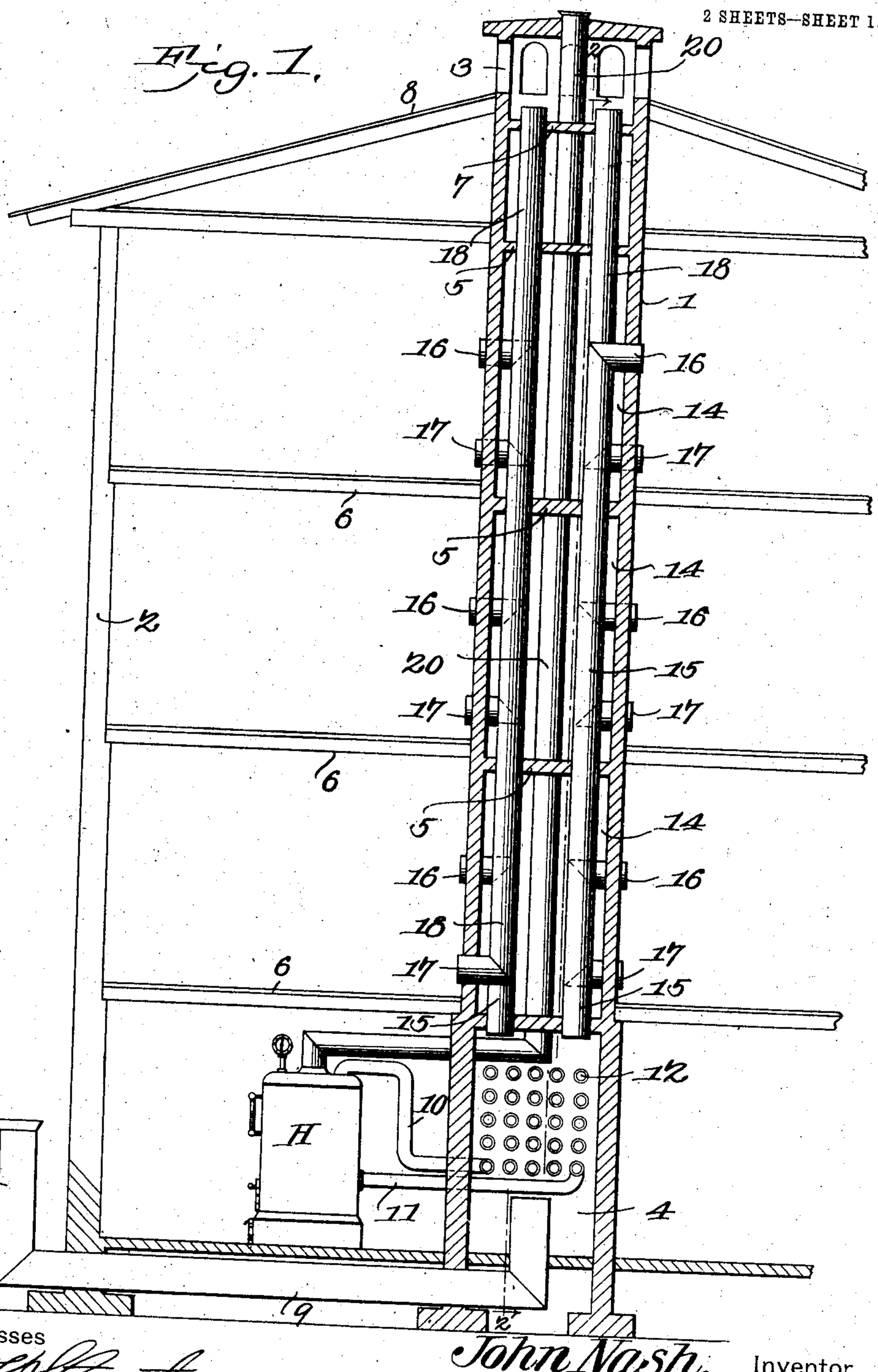
J. NASH.

HEATING AND VENTILATING SYSTEM.

APPLICATION FILED OCT. 21, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

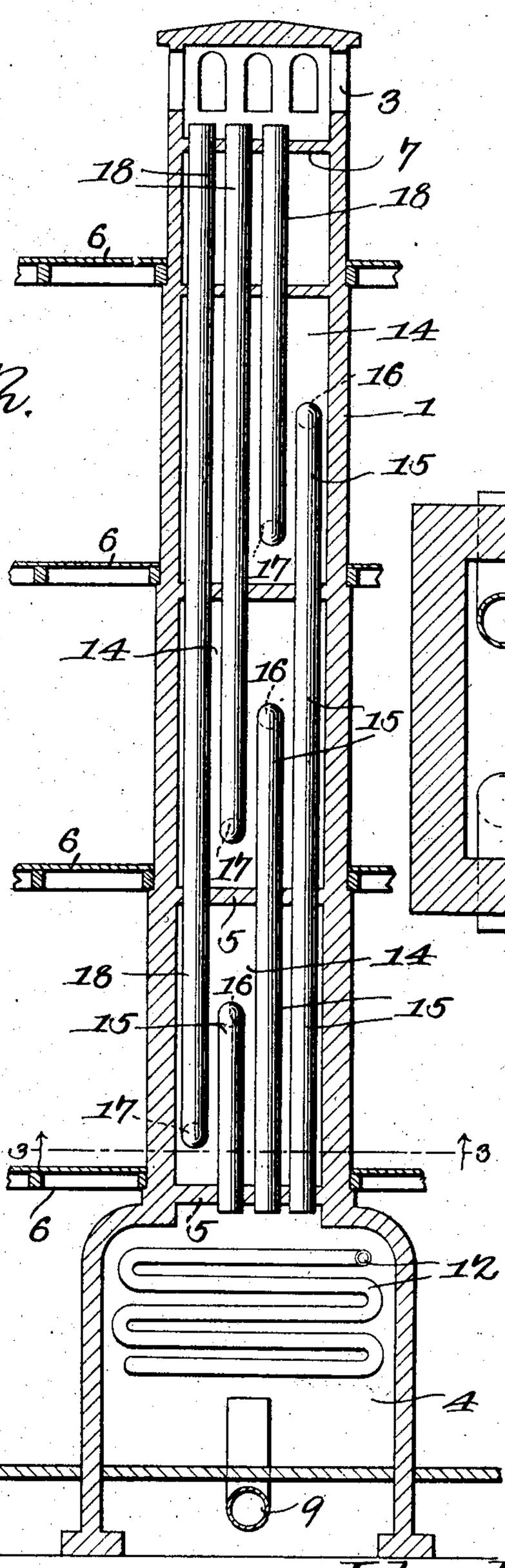
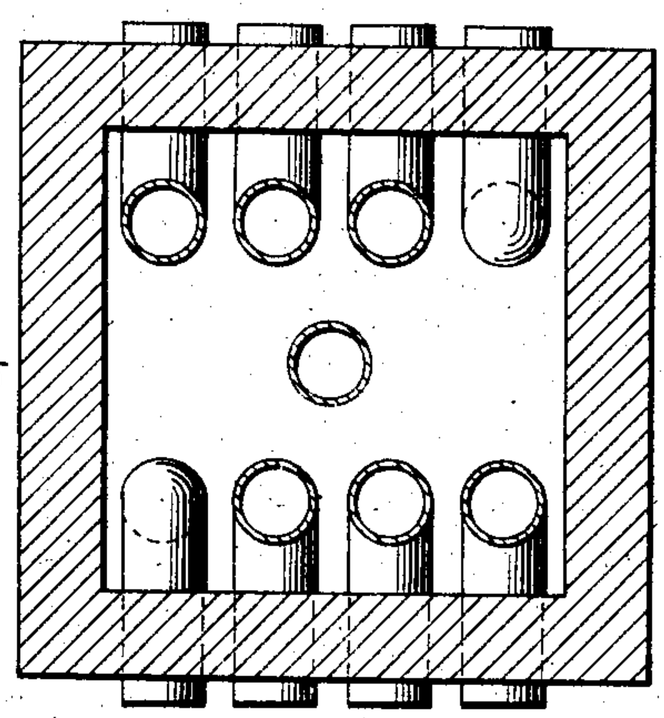


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN NASH, OF DAYTON, WASHINGTON.

HEATING AND VENTILATING SYSTEM.

No. 834,927. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed October 21, 1905. Serial No. 283,844.

To all whom it may concern:

Be it known that I, JOHN NASH, a citizen of the United States, residing at Dayton, in the county of Columbia and State of Washington, have invented a new and useful Heating and Ventilating System, of which the following is a specification.

This invention relates to heating and ventilating systems for buildings; and the objects of the invention are to simplify and improve the construction and operation of systems of this character.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claim.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be resorted to when desired.

In the drawings, Figure 1 is a vertical sectional view showing the invention applied in operative position to a building. Fig. 2 is a sectional view taken on a plane at right angles to Fig. 1 and on the line 2 2 in said figure. Fig. 3 is a horizontal sectional view, enlarged, taken on the plane indicated by the line 3 3 in Fig. 2.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

In carrying this invention into practical operation there is constructed a vertical flue or stack 1, extending through the several floors of a building 2 and terminating above the roof in a ventilator 3. This stack is preferably located in such a position as to communicate with rooms or compartments on opposite sides thereof. The lower end of the stack is expanded to form a heating chamber or compartment 4, which is preferably located in the cellar of the building, and within the stack there are a plurality of horizontal partitions 5 5, corresponding with the floors 6 6 of the building. An additional partition 7 in the stack corresponds with the roof 8 of the building, above which the ventilator portion of the stack extends. Fresh and pure air is admitted from an external source to the heating-compartment 4 through a suitably-arranged pipe or duct 9. In the cellar or compartment adjacent to the heating-chamber 4 is located a heating apparatus, which has here been illustrated as a water-heater H, which is connected by a flow-pipe 10 and a return-pipe 11, with a heating-coil 12 disposed within the chamber 4 for the purpose of heating the pure air as it enters from the outside. It is desired to be understood that other means than that herein shown may be used for the purpose of heating the air entering the chamber 4 within the scope of the invention. This stack 1 is divided, as described, by the horizontal partitions 5 into a series of compartments 14. Into each of these compartments there is extended a hot-air pipe or duct 15 or a plurality of such ducts, according to the number of apartments to be heated, one of the pipes or ducts being connected, as by an elbow 16, with each of the rooms or apartments which it enters, preferably at a point about equidistant between the floor and the ceiling, preferably closer to the ceiling than to the floor. Through these pipes or ducts pure hot air will be conveyed from the heating-chamber 4 direct to the room or apartment.

Each of the rooms with which the hot-air pipes are connected is connected, as by an elbow 17, with a ventilating pipe or duct 18, extending upwardly through the stack, a separate ventilating-pipe being provided for each room as well as a separate hot-air pipe. The several hot-air and ventilating pipes are extended through the partitions 5 and through the compartments separated by said partitions which are located below the rooms connected with the heating-pipes and above the rooms connected with the ventilating-pipes, as will be readily understood. Thus the heating-pipes all connect the rooms or apartments that are to be heated with the heating-chamber 4, while the upper ends of the vent-pipes, which are extended through the uppermost partition 7, terminate in the ventilator.

The operation and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. It will be seen that pure hot air will be freely and amply supplied to each room or apartment through the pipes or ducts 15. In like man-

ner each room has its separate ventilating-pipe whereby the impure and vitiated air is conveyed to and discharged through the ventilator. The several pipes or ducts may be provided with valves or registers for the purpose of controlling the passage of air therethrough; but it has not been deemed necessary to illustrate such controlling means, as they are well known in the art. The smoke-conductor 20 extends from the heater centrally through the stack, and this, in connection with the hot-air pipes, serves to heat the air in the spaces or compartments 14. This is an important feature of the invention, for the reason that by this means the ventilating pipes or ducts extending through said spaces or compartments are heated, thereby establishing in said pipes an upward draft or suction which is effective in causing the impure and vitiated air in the rooms to seek an outlet through the openings of the elbows 17, which are disposed near the floors of the respective rooms. Thus it will be seen that by this invention there is established a direct suction means for the purpose of removing from the rooms the cold, vitiated, and impure air which naturally settles adjacent to the floor, while pure hot air is freely admitted to replace that which is withdrawn through the ventilating ducts or pipes.

In some cases, and especially in buildings where a plurality of heating and ventilating stacks are employed, it will not be necessary to extend a smoke-flue through each of said stacks, and the construction may be to that extent simplified, as will be readily understood, the omission of the smoke-flue from the ventilating-stack being considered within the scope of the invention.

This heating and ventilating device or system, as will be seen, is extremely simple in construction, and the operation thereof is simple and effective.

Having thus described the invention, what is claimed is—

In a heating and ventilating system, a stack having at its base an air-inlet and at its top laterally-disposed openings, a partition located in the stack just below said openings, a series of partitions located at intervals in the stack and dividing the same into air-tight compartments which are coincident in length to the height of the adjacent rooms, an air-heating means located in the base of the stack, warm-air conduits located within the stack and passing through the partitions thereof and at their upper ends entering rooms substantially at the breathing-line thereof, the lower ends of said conduits communicating with said heating means, foul-air-outlet conduits located within the stack and passing through the partitions thereof and having their lower ends entering the rooms below the ends of the warm-air conduits and their upper ends extending above the upper partition in the stack and terminating below the lateral openings thereof.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN NASH.

Witnesses:
J. C. MacCrimmon,
J. H. Needham.