

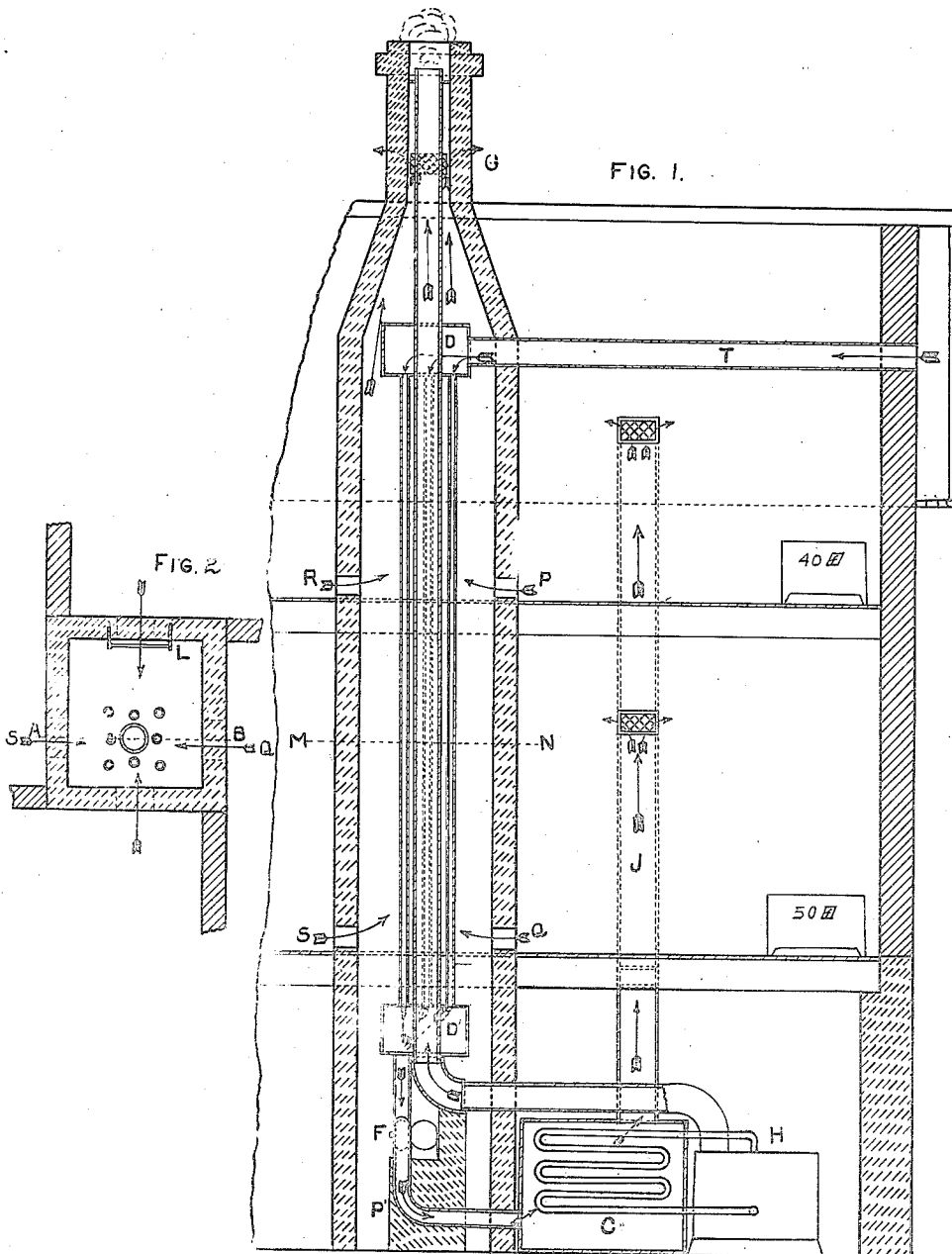
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COMBINED SYSTEM OF REGENERATIVE HEATING AND VENTILATION.

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1,059,600.

Patented Apr. 22, 1913.



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COMBINED SYSTEM OF REGENERATIVE HEATING AND VENTILATION.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, STACEY FISHER, a citizen of the United States, residing at 2384 East Sixty-seventh street, Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Combined System of Regenerative Heating and Ventilation, of which the following is a specification.

My invention relates to an improved system of regenerative heating and ventilation, the primary object being to provide a generally improved system of heating and forced ventilation for use in connection with dwellings, houses, apartments, and the like.

A further object is to so arrange and dispose the fresh air conduits and inlet ports relative to the foul air conduits and ports and the heating unit and flues for the escape of the products of combustion as to result in an improved system of heating and ventilation.

In carrying out my invention for the purposes above mentioned I prefer to provide a main flue or air chamber extending through the rooms to be heated and surrounding the furnace flue for the escape of the products of combustion, said main flue or air chamber being provided at suitable intervals with ports intersecting the lower portions of the rooms to be heated and ventilated and being also provided with a plurality of vertically disposed fresh air inlet pipes surrounding the furnace flue and communicating at their bottom with a suitable suction fan or blower adapted to draw the fresh air through the inlet pipes from a main fresh air conduit and to discharge the same over the heating unit and through the hot air pipes or conduits leading to the rooms to be heated.

By the above arrangement a large part of the heat from the foul air and the flue gas escaping upwardly through the main flue or air chamber is utilized in gradually warming the fresh incoming air drawn downward through the vertically arranged inlet pipes surrounding the furnace flue or pipe and arranged within the main flue or air chamber. By my improved system, the following results are obtained: (1) a more sanitary system of ventilation than the ordinary methods commonly employed; (2) a more economical system of heating through the general arrangement and combination of the parts and the forced ventilation and distribution of heated air; and (3) a more perfect system of air distribution and ventilation.

With the above mentioned and other ends in view, the invention consists in the novel construction, arrangement and combination of parts herein described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings forming a part of this specification, Figure 1, is a vertical central sectional view of a house equipped with necessary apparatus for carrying out my improved system of heating and ventilation. Fig. 2, a horizontal sectional view taken on line M—N of Fig. 1.

In carrying out my invention, I provide a main flue or chamber adapted to extend from the basement through the rooms to be heated and to conduct the foul air from the latter through the medium of the foul air inlet ports or openings R, P, S, and Q, the latter being preferably in the lower portions or near the floor lines of the rooms to be heated, as shown.

The heater H, may be of any suitable and convenient form or type, and as shown in the present instance, may be provided with heating coils C, for hot water or steam, said coils being adapted to form the heating unit and inclosed within a casing as shown, and the furnace flue leading from the heater H, is arranged centrally of the main flue or air chamber.

The fresh air supply comprises a fresh air conduit T, preferably arranged in the upper portion of the building as shown, said fresh air conduit intersecting the main flue and terminating in a drum or manifold D, surrounding the upper portion of the furnace flue and communicating with a plurality of vertically arranged air inlet pipes arranged about the furnace flue and preferably in close proximity to the latter, said vertically arranged fresh air inlet pipes terminating at their lower end in a second or lower drum manifold D', the fresh air being drawn downwardly through the fresh air inlet pipes by means of a suction fan F, and forced from the latter through the medium of a pipe P', leading into the lower portion of the casing surrounding the heating coils C. As the air passes over the coils C, it is heated to the requisite temperature and is forced upwardly through the hot air pipe or flue J, the latter being intersected by suitable registers intersecting the rooms to be heated

through the side walls thereof, and preferably near the upper portions of said rooms, and the hot air thus forced into the rooms acts to displace and force out the foul air in the lower portions thereof and out through the openings R, P, S, and Q, as indicated by the arrows. The heated foul air passing out through said ports comes into contact with the fresh air inlet pipes connecting the drums or manifolds D, and acts to initially warm the incoming fresh air passing downwardly through the fresh air pipes to the suction fan, the heated foul air passing upwardly through the main flue and out through the openings G, of the latter, as shown.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

Having thus described one of the embodiments of my invention, what I claim and desire to secure by Letters Patent is,—

1. In a heater and ventilator, a main flue extending through the rooms to be heated and provided with foul air inlet ports leading from the latter, a furnace flue mounted therein, a heating unit, a casing surrounding the latter, a plurality of fresh air inlet pipes surrounding said furnace flue and terminating in upper and lower manifolds, a fresh air inlet conduit leading to said upper manifold, and a suction fan and conduit communicating with said lower manifold and casing, said casing being provided with a hot air conduit leading to the upper portions of the rooms to be heated.

2. A heater and ventilator, comprising a main flue extending through the rooms to be heated, and provided with foul air ports communicating with the latter, a furnace flue therein, a plurality of vertically arranged fresh air inlet pipes terminating in manifolds surrounding said furnace flue, a fresh air conduit leading to one of said manifolds, a suction fan communicating with the other manifold, a heating unit adapted to heat further the incoming air as received from said suction fan, and a hot air conduit leading from said heater to the upper portions of the rooms to be heated.

3. A heating and ventilating system, comprising a main flue extending through the rooms to be heated provided with foul air inlet ports in the lower portion of the latter, a heater, a furnace flue arranged within said main flue, a plurality of vertically arranged fresh air inlet pipes arranged about said furnace flue and within said main flue, upper and lower manifolds communicating with said vertically arranged fresh air inlet pipes, a fresh air conduit leading to said upper manifold, a suction fan communicating with said lower manifold and adapted to discharge the air to said heater, and a hot air conduit leading from said heater and communicating with the rooms to be heated.

4. A heater and ventilator, comprising a main flue extending through the rooms to be heated and provided with foul air ports communicating with the latter, a furnace flue in said main flue, fresh air inlet pipes spaced about and surrounding said furnace flue and terminating at their ends in manifolds, a fresh air conduit leading to one of said manifolds, a suction fan communicating with the other manifold, a heating unit, a casing surrounding said heating unit, a pipe leading from said suction fan to said casing, and a hot air conduit leading from said casing to the rooms to be heated.

5. A heating and ventilating system, comprising a main flue extending through the rooms to be heated and provided with foul air inlet ports in the lower portions of the latter, a heater, a furnace flue arranged within said main flue, a series of fresh air inlet pipes arranged about said furnace flue, upper and lower manifolds surrounding said furnace flue and communicating with said pipes, a fresh air conduit leading to said upper manifold, a suction fan communicating with said lower manifold and said heater, and a hot air conduit leading from the latter to the upper portions of the rooms to be heated.

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