

No. 664,706.

Patented Dec. 25, 1900.

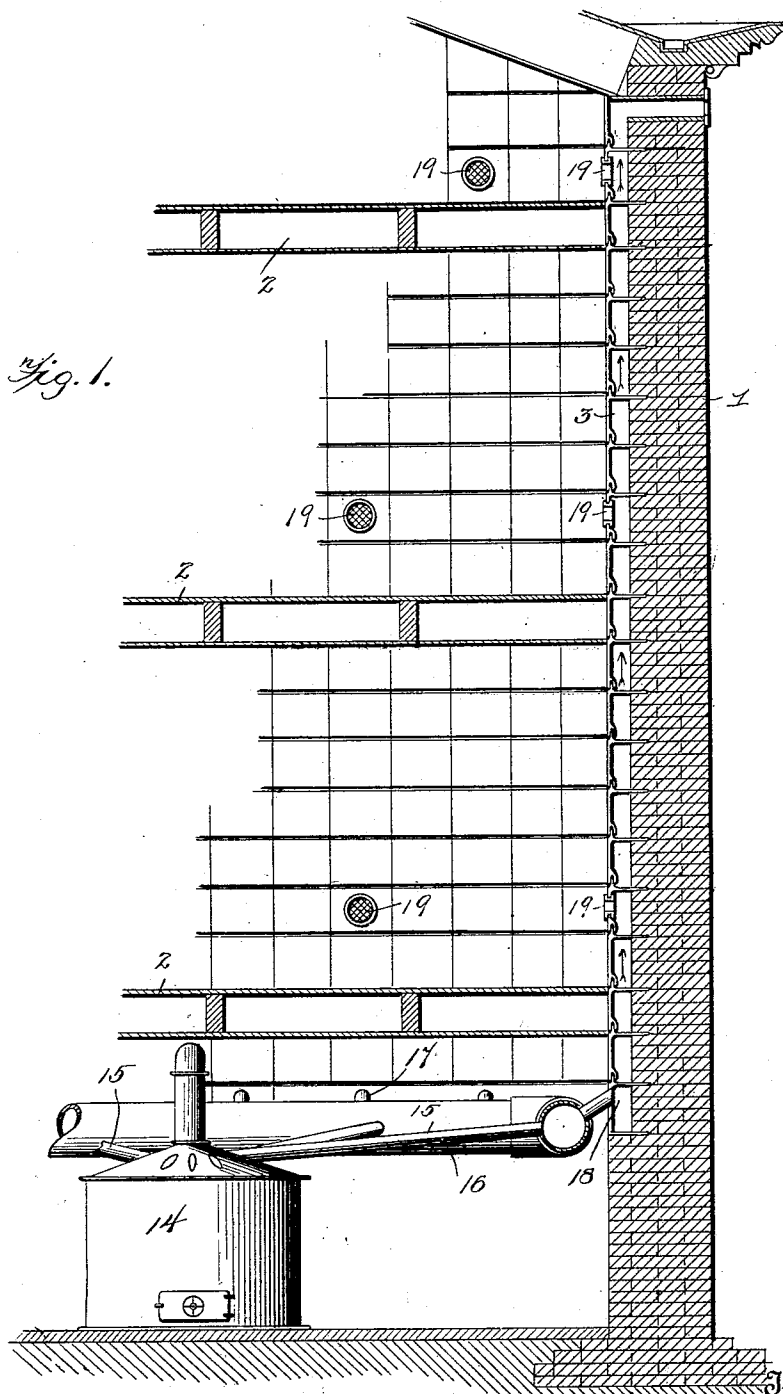
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HEATING AND VENTILATING SYSTEM FOR BUILDINGS.

(Application filed Feb. 19, 1900.)

(No Model.)

2 Sheets—Sheet 1



Witnesses

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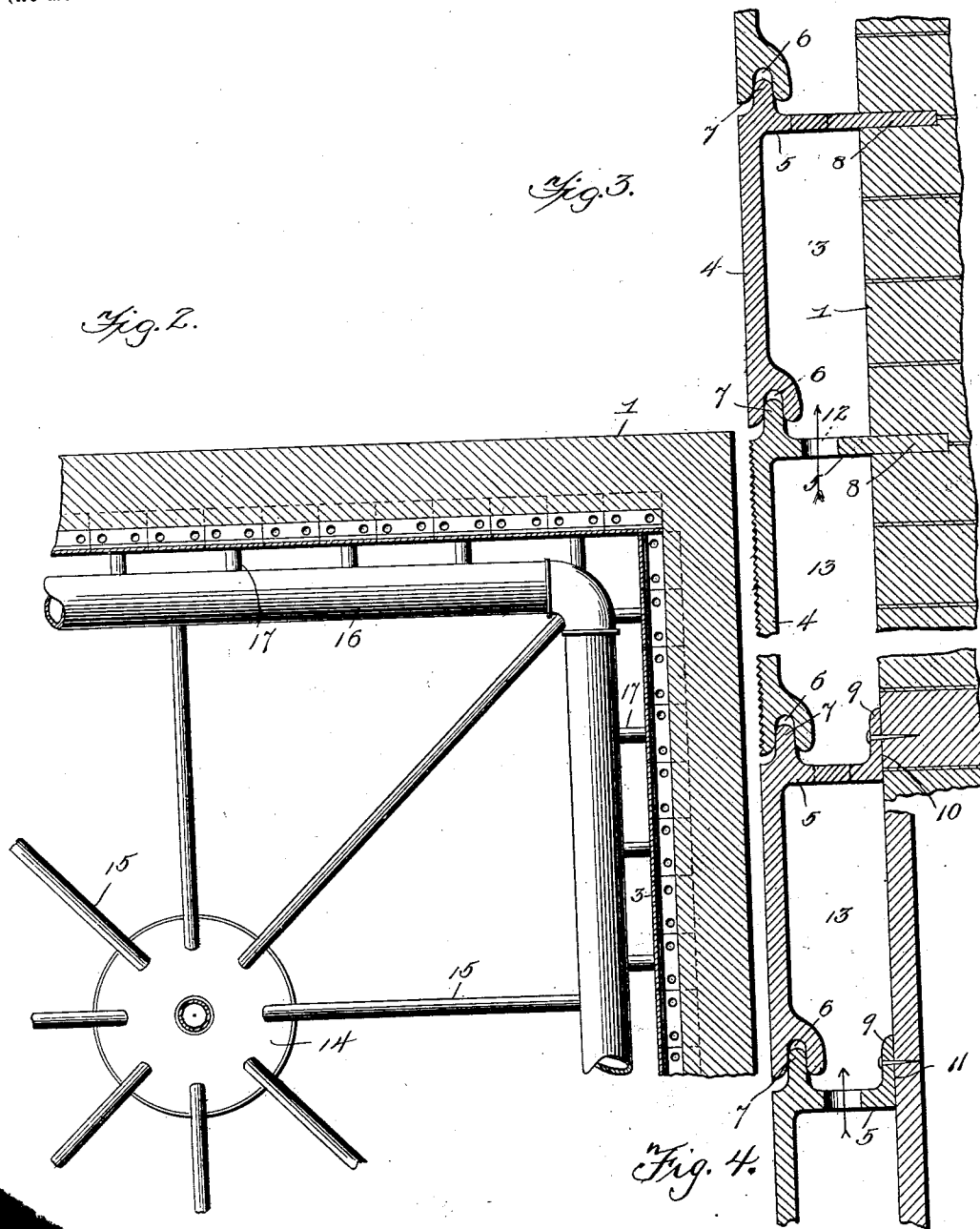
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2 Sheets—Sheet 2.

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Inventor.
David Wiley Anderson
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UNITED STATES PATENT OFFICE.

DAVID WILEY ANDERSON, OF RICHMOND, VIRGINIA.

HEATING AND VENTILATING SYSTEM FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 664,706, dated December 25, 1900.

Application filed February 19, 1900. Serial No. 5,755. (No model.)

To all whom it may concern:

Be it known that I, DAVID WILEY ANDERSON, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Heating and Ventilating Systems for Buildings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to heating and ventilating systems for buildings; and its primary object is to provide an improved system which will insure the thorough heating or cooling of a building by the circulation or distribution of air through conduits or passages extending throughout the entire area of the walls, or substantially the entire area, instead of through the flues ordinarily employed as conduits for hot or cold air.

The invention is adapted for both heating and ventilating; but as it is designed primarily for heating it will be described as a heating system.

The main characteristic and distinguishing feature of the improved system is that the hot air supplied in any preferred manner to the spaces or conduits within the walls is interrupted in its upward course and caused to circulate laterally to thoroughly distribute the heat along a portion of the horizontal area of the wall before passing to the next higher section or portion of the air-space. In other words, I provide for both a lateral or horizontal circulation as well as an upward escape or distribution of the heat. The result in view is accomplished by the formation of hot-air spaces within the wall by means of hollow sections of tiling or any other suitable material constructed, assembled, and arranged as hereinafter described, and the construction of the air spaces, conduits, or flues, as well as their connection with the source of heat, will be fully described in connection with the accompanying drawings, forming part of this specification, and the novel features of the

invention will be defined in the appended claims.

In the drawings, Figure 1 is a vertical section of a portion of the wall of a building with my improvements applied thereto. Fig. 2 is a horizontal section of a portion of a wall, illustrating the connection therewith of the improvements. Figs. 3 and 4 are enlarged vertical sections showing the relative arrangement of the sections which form the heating-flues and their securing devices.

The reference-numeral 1 designates the wall, and 2 the floors, of a building. To the inner surface of the wall is secured a facing 3, built up of hollow tiles or sections of the construction best shown in Figs. 3 and 4, comprising vertical portions or plates 4 and horizontally-projecting flanges 5. The lower edge of each of the tiles is thickened and formed with a continuous horizontal groove 6, adapted to receive a tongue or flange 7, projecting from the upper end of the next adjacent tile. The horizontal flanges 5, as shown in Fig. 3, may be secured between the layers of masonry, as shown at 8 in the drawings, or the inner edges of the flanges may be turned upward, as shown at 9 in Fig. 4, to adapt them to be nailed to a masonry wall, as shown at 10, or a frame structure, as shown at 11 in Fig. 4. The horizontal flanges of the tiles or conduit-sections are formed with openings 12 for the upward passage of hot air, as will be again referred to. When the conduit-sections are assembled and connected as illustrated in Figs. 3 and 4, they form a series of spaces 13 for the circulation and distribution of hot air, and as the tiles or sections are open at their ends and joined end to end in horizontal rows horizontal conduits are formed, divided or separated by the flanges 5.

Referring now to Figs. 1 and 2, 14 designates a furnace or heater of any suitable or preferred construction located in the basement or cellar and connected by any desired number of radiating-pipes 15 with a larger pipe or conductor 16, extending around the inside of the wall. This pipe or heat-conductor 16 is connected by a series of pipe connections 17 with the lower row 18 of the tiles or conduit-sections, suitable openings

being provided in the sections to permit of such connections. The heated air from the furnace passes through the pipes 15, the conductor-pipe 16, and feeder-pipes 17 to the lower row of tiles and circulates through the horizontal space 13 formed by said lower row, escaping through the openings 12 of the flanges 5 into the horizontal space 13 formed by the next row of tiles or sections, and so on upward through all of the divisions or compartments of the wall-facing.

Inasmuch as the openings 12 in the several flanges 5 do not aline vertically, it will be obvious that the hot air entering the lower division or compartment of the conduit will spread or circulate laterally to fill or partly fill the lower division of the conduit before escaping to the horizontal division next above. Thus the hot air in its upward course is caused to thoroughly and gradually heat the wall, the upward progress or currents of the air being interrupted and retarded. This, as has been stated above, is an important feature of the invention, as it allows a thorough and free distribution of the hot air both laterally and vertically and gradually heats the wall throughout its area from bottom to top.

It will be obvious that with the arrangement of passages or conduits described the registers 19 for admitting hot air from the wall-spaces to different rooms or compartments may be placed at any point desired within the apartment.

While I have shown a furnace as the source of heat-supply, it will be understood that any suitable source of heat may be employed. For instance, it would be entirely practical to employ any well-known stove or heater disconnected from the walls in a cellar or basement and leave openings in the lower row of tiles, so that the wall-conduits will be in communication with the heated air surrounding the heating means.

In addition to the advantages referred to above it will be noted that the conduits are fireproof, that the walls are kept dry and free from moisture, the plumbing-pipes arranged within the walls are not in danger of freezing, and the walls are in condition at all times, regardless of weather, for plastering.

When it is desired to utilize the system for ventilating purposes, the registers may be placed near the ceiling and the air caused to pass off through the roof. Steam pipes or coils may be employed to generate heat for the lower conduit extending around the perimeter of the cellar or basement.

I would have it understood that I reserve

the right to make all such changes, variations, and modifications in the details of the invention as may properly fall within the scope of the appended claims.

I claim—

1. In a heating and ventilating system, a wall-facing comprising tile sections provided with transverse perforated projections, said sections forming in connection with the wall horizontal air-passages, whereby air entering the lower sections will be distributed laterally or horizontally in its upward course.

2. In a heating and ventilating system, a wall-facing comprising tile sections forming in connection with the wall conduits, and having perforated projections serving to partially obstruct ascending currents of air and direct them along the horizontal conduits.

3. The combination with the wall of a building, of a facing built up from independent sections provided with perforated flanges, said flanges serving to divide the space between the facing and wall into divisions or channels, and to interrupt the upward course of the air-currents.

4. The combination with the wall of a building, of a facing built up from independent sections provided with perforated transverse flanges which divide the space between the facing and wall into horizontal chambers, the lower one of which is provided with air-inlet openings.

5. The combination with a wall, of tile-sections secured to the wall at a distance therefrom to form with the wall air-conduits and having horizontal perforated flanges, a heater and hot-air pipes connecting the heater with the wall-conduits.

6. The combination with a wall, of series of wall-tiles or conduit-sections provided with perforated horizontal flanges, a heater, a conductor-pipe connected with said heater, and feeder-pipes connecting said conductor-pipe with the lowermost series of wall-tiles or conduit-sections.

7. In a heating and ventilating system the combination with a wall, of a facing therefor, comprising tiles or plates formed with horizontal perforated flanges assembled to form air-conduits; a heater connected with the lower portion of the facing to supply hot air thereto, and registers set into the facing.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID WILEY ANDERSON.

Witnesses:

A. H. FELTHAUS,
D. EARLE ALLEN.