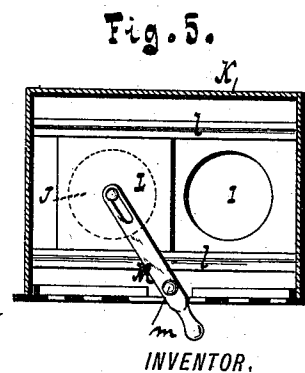
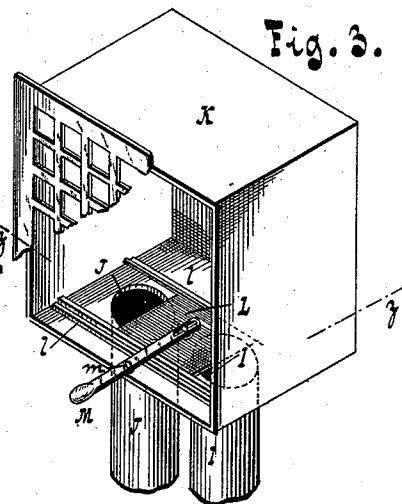
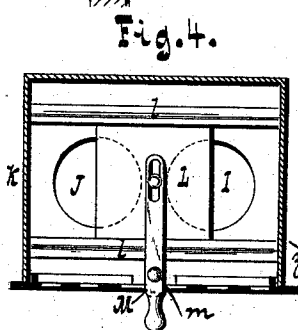
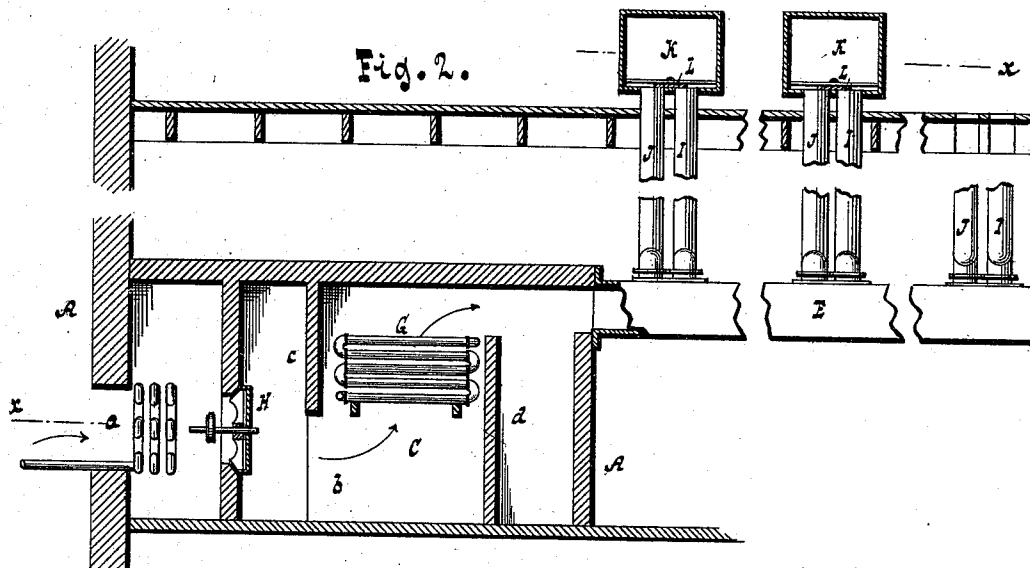
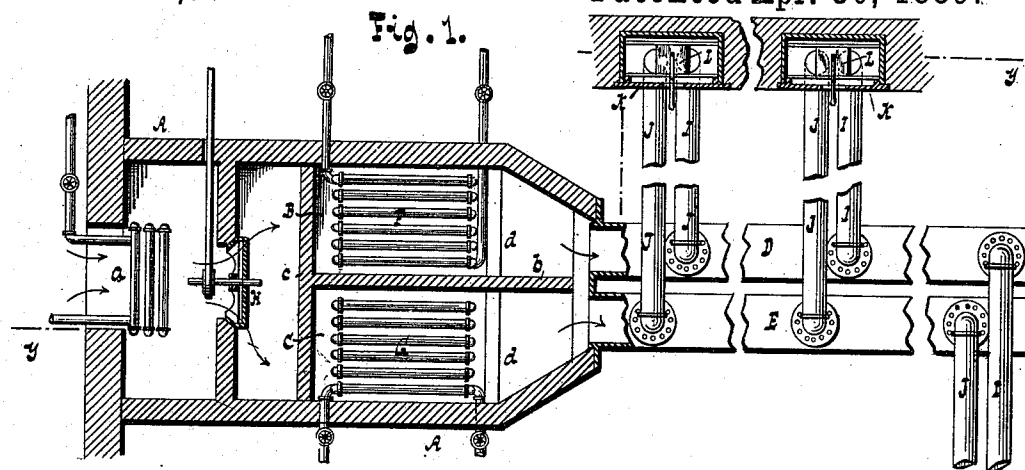


W. J. BALDWIN.

APPARATUS FOR HEATING AND VENTILATING BUILDINGS.

No. 402,386.

Patented Apr. 30, 1889.



WITNESSES:

A. Fisher & Co.
William Miller

INVENTOR.

William J. Baldwin.
BY
Van Sauter & Hauff
his ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

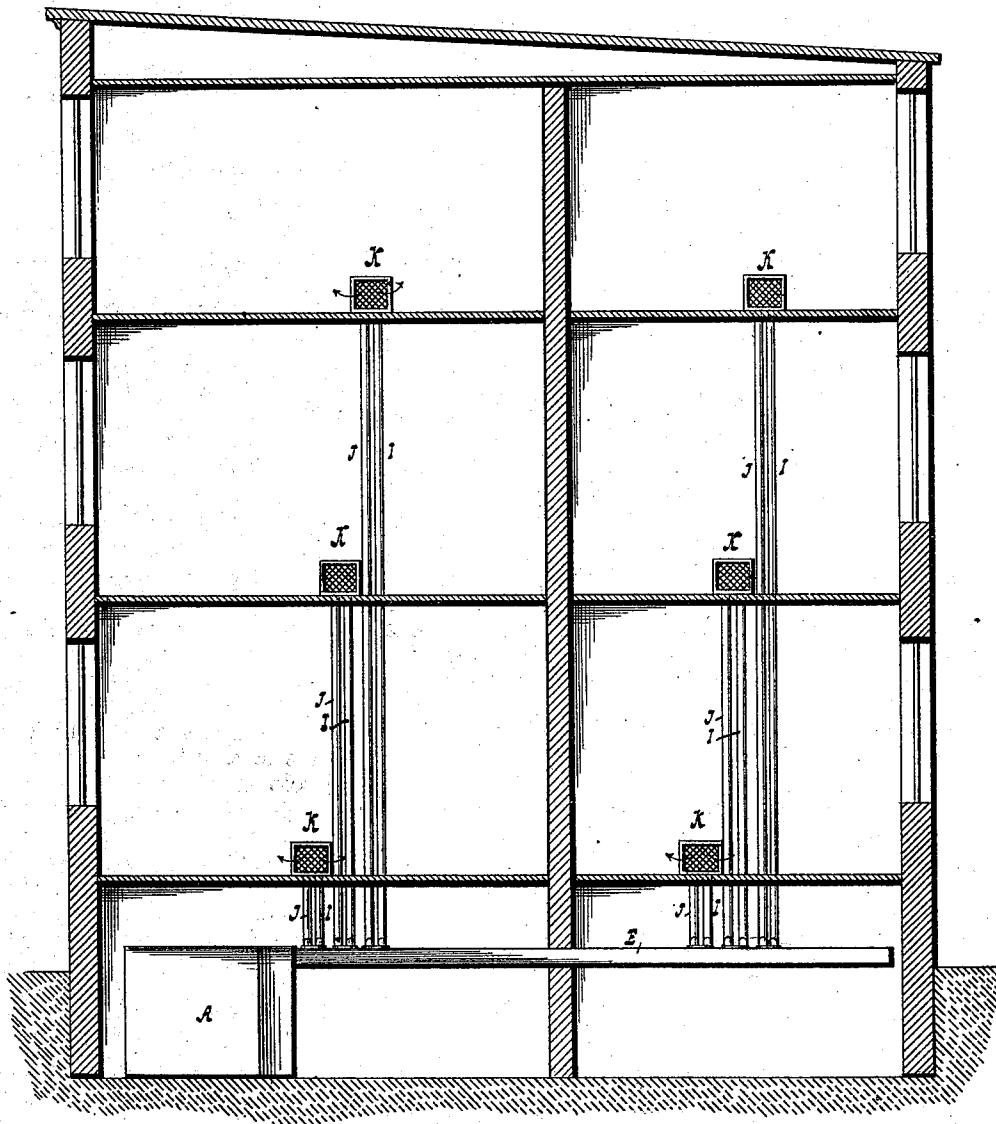
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Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM J. BALDWIN, OF BROOKLYN, NEW YORK.

APPARATUS FOR HEATING AND VENTILATING BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 402,386, dated April 30, 1889.

Application filed February 2, 1888. Serial No. 262,701. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BALDWIN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Apparatus for Heating and Ventilating Buildings, of which the following is a specification.

My invention relates to improvements in apparatus for heating and ventilating buildings, and has for its object to enable the occupants of any room in the building to regulate the temperature of the air entering said room at will without affecting thereby the temperature of the air entering any other room in the building.

To this end my invention consists, essentially, in the combination of the parts pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a horizontal section in the plane $x x$, Fig. 2, of an apparatus constructed according to my invention. Fig. 2 is a vertical section thereof in the plane $y y$, Fig. 1. Fig. 3 is a perspective view, on a larger scale than the preceding figure, of one of the heads. Figs. 4 and 5 are horizontal sections in the plane $z z$, Fig. 3, showing the valves in different positions. Fig. 6 is a vertical section showing the apparatus applied to a building, said figure being drawn on a smaller scale than Fig. 1.

Similar letters indicate corresponding parts. In the drawings, Figs. 1 and 2, the letter A designates an air-heating furnace having an inlet, a , communicating with the outer air. The furnace is divided into two longitudinal chambers, B and C, by a longitudinal vertical partition-wall, b , from which chambers are led extensions D and E, closed at their outer end. In one of the chambers B C is located a steam coil or radiator, F, for heating the air to a high temperature, and in the other chamber is a radiator or coil, G, which is intended to heat the air to such an extent as to remove only the chill therefrom, or which may be used to cool the air passing through said chamber.

The radiator F may be replaced by an ordinary fire-grate, and the radiator G can be dispensed with altogether, if desired.

At the front of the longitudinal partition b ,

and extending transversely across the front of the hot and cold air chambers B C, is located a vertically-suspended air-deflecting wall, c , under which the air passes to the said chambers, and at the rear of the latter is located an upwardly-extending air-deflecting wall, d , over which the air passes from the chambers to the hot and cold air trunks or extensions D E. Inside the furnace, and between the transverse air-deflecting wall c and the front air-inlet, a , is located an air-forcing fan, H, which induces an air-current through the said air-inlet and forces such air under the transverse wall c into both the hot and cold air chambers B C, for forcing the hot and cold air into the different apartments of a building by the conducting-pipes, hereinafter explained. This air-forcing fan, by the arrangement shown in relation to the air-inlet a and the walls b and c , is thus common to both the hot and cold air chambers.

From each room of the building, Figs. 1, 2, and 6, extend two pipes, I J, the pipes I of each pair being connected to the hot-air extension D, and the pipes J of each pair being connected to the cold-air extension E. (Best seen in Fig. 1.) The openings of the different pairs of pipes are by preference placed in close proximity to each other, so that they may be controlled by a single valve, L, Figs. 3, 4, and 5; but said openings may be arranged at any convenient distance one from the other, and in this case each opening is controlled by a separate valve, L^* , as shown in Fig. 7. In the example represented by the drawings heads K are placed in various rooms of the building, Figs. 1, 2, and 6, which heads can be conveniently set into the wall of the building, and said heads communicate with the rooms, preferably through one side.

Each head K is connected by a pipe, I, with the hot-air extension D, and with the cold-air extension E by a pipe, J. The hot and cold air pipes I J are led upward side by side and terminate or open in the bottom of the heads, the said openings being best in close proximity to each other, so that they may be controlled by a single valve, L, Figs. 3, 4, and 5.

The hot and cold air discharging from the pipes I and J mixes in the heads K, and enters the rooms through the openings in said heads. In the example shown in the draw-

ings, Figs. 1, 2, 3, 4, and 5, a valve, L, for controlling the supply of air from the hot and cold air pipes, is located in each of the heads. Each of said valves consists of a slide located directly over the terminals of the hot and cold air pipes, said slide being guided in a rectilinear path across the said terminals by suitable guides, *ll*. The slide is actuated by a lever, M, which is pivoted to the head K at *m*, and is provided with a handle which extends exterior to the head. The slide is of such a length that when in a position central between the terminals of the pipes I and J it closes off one-half of each of the same, and consequently when the valve is moved in a direction to close one terminal the other terminal is proportionately opened, Figs. 4 and 5, whereby the temperature of the air-supply entering any one room of the building can be regulated to a nicety, but a full supply of fresh air can never be shut off.

The object of the extensions D and E of the hot and cold air chambers is to render the alignment of the pipes I J more simple. It is obvious that the pipes I and J could be connected directly with the hot and cold air chambers, respectively.

By providing an independent set of hot and cold air pipes for each room of the building, as herein described, the temperature of the air-supply to each room can be regulated or adjusted without affecting the temperature of the supply entering any other room in the building.

It will also be noticed that by mixing the hot and cold air in proximity to its discharge into the room, and providing a valve such as described, the quantity of fresh air supplied to the room must always be constant.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an apparatus for regulating the supply of hot and cold air to different rooms of a building, of a head communicating at one side with the room, the separate pipes I J, opening into said head, and

a valve or slide moving in a right line across the openings of the pipes and adapted to close or partly close either one and effect an equal opening of the other pipe, substantially as shown and described.

2. The combination, with a furnace having a hot-air chamber and a separate chamber containing a radiator or coil for removing the chill from the air, of separate pipes connected with said chambers, a head with which said pipes have separate and adjacent communication, and a valve sliding in a right line across the open ends of both pipes and adapted to close or partly close either one of said pipes and effect an equal opening of the other pipe, substantially as described.

3. The combination, with the furnace A, having separate chambers B and C, one adapted to supply heated air and the other to supply cold air, of the fan H, the extensions D and E, the pipes I and J, running from the extensions to the rooms, the head K, in which the pipes I and J have their terminals side by side, the valve L, moving in said head to cover or partly cover either terminal and equally uncover the other, and the lever M, substantially as described.

4. The combination, with the pipes I and J, one for hot and the other for cold air, of a head, K, opening on one side into the room to be heated, and having upon another side the terminals of the pipes entering side by side, a valve, L, moving in a right line over said terminals, and having such dimensions as to wholly close or partly close either pipe and effect an equal opening of the other, and a lever operating said valve, substantially as shown and described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

WILLIAM J. BALDWIN. [L. s.]

Witnesses:

W. C. HAUFF,
E. F. KASTENHUBER.