E. J. Hardy,

House Ventilator,

No. 45,244, Patented Nov. 29, 1864

Fig. 2.

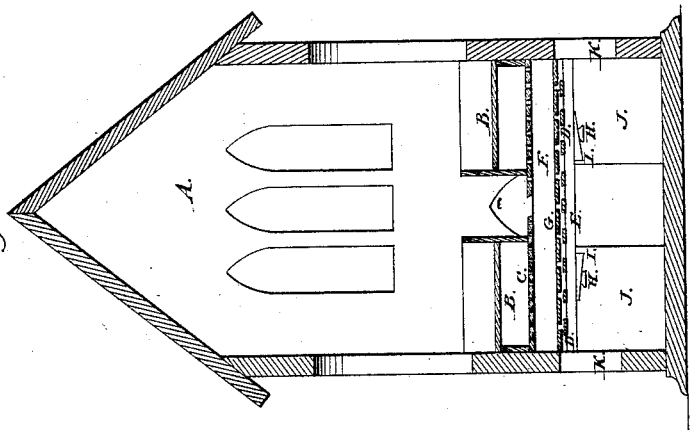
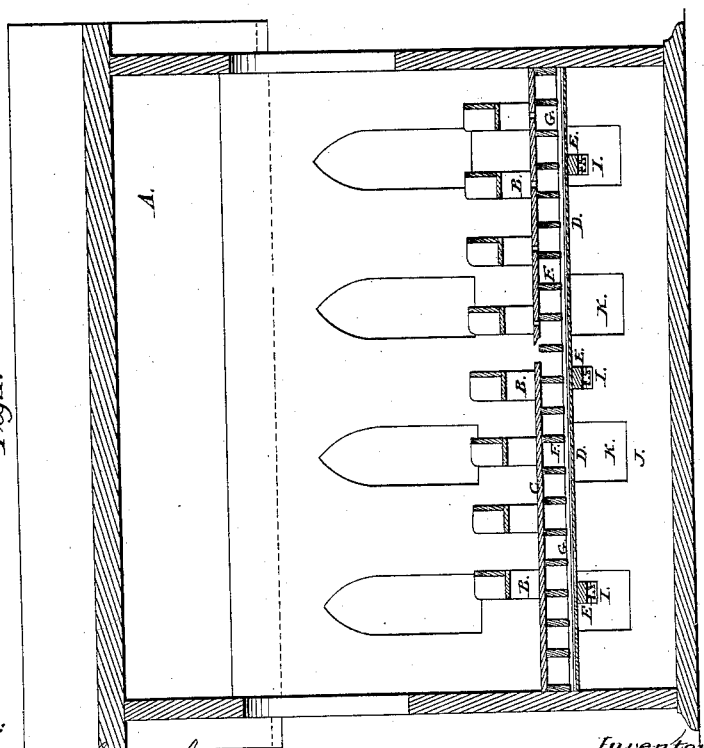


Fig. 1.



Witnesses:
E. B. Forbush
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Inventor:
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UNITED STATES PATENT OFFICE.

EDWIN J. HARDY, OF BUFFALO, NEW YORK.

IMPROVEMENT IN WARMING AND VENTILATING CHURCHES AND PUBLIC HALLS.

Specification forming part of Letters Patent No. 45,244, dated November 29, 1864.

To all whom it may concern:

Be it known that I, EDWIN J. HARDY, of the city of Buffalo, county of Erie, and State of New York, have invented a new and improved mode of warming and ventilating churches, public halls, and other buildings; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I is a section showing the application of my improvement to a church edifice. Fig. II is a cross-section of the same.

The nature of this invention consists, first, in making the floor of the church edifice or other building of narrow boards or slats, with open joints or open perforated work, in connection with a basement or lower room provided with stoves or furnaces for heating, so as to allow the warm air from the basement or room below to pass up between the joints or openings in the floor and within the pews or slips, and the persons occupying the pews or slips receive the immediate benefit of the warm air before it rises and mixes with the cold air above; second, in providing means to close the openings through the floor or ceiling (or any portion thereof) at any time it may be required to use the basement below without warming the upper room, or at any time it may be required to increase or lessen the heat in any part of upper room.

Letters of like name and kind refer to like parts in each of the figures.

A represents a church edifice or public building in which my improvement is applied. B represents the pews or slips; F, joists upon which the floor is laid.

The floor of the church-room or hall is made of narrow boards or slats, which are represented at C. These are so laid as to leave a space between each, (or with open joints,) so that the heated air from the basement may freely rise up from the basement directly into the pews, and persons occupying the pews receive the immediate benefit of the heat before it rises to mix with the cold air above, and thus the room can be occupied with comfort immediately after the fires are kindled, and a great economy of heat and fuel thereby effected.

As a modification of the open joints, the floor may be laid compact, as usual, and then perforated with holes of suitable size and number to accomplish the same purpose.

The floor in the aisle may be laid compact, as usual, and need not be perforated.

The ceiling G, on the under side of the joists, is also made with open joints, as represented, so as to regulate or shut off the heat, as may be desired.

In order that the openings thus made in the ceiling may be closed, or partially closed, at any time for the purpose of regulating the supply of heat to the upper room, I have provided a series of narrow strips, which are represented at D, corresponding with the slits or openings through the ceiling, and have connected these narrow strips in sections to cross-pieces E, so that each section may be raised and brought in contact with the ceiling in a manner to close the openings therein, or lowered when a full volume of heat is required. In order to hold these sections in place I have provided a number of large-headed pins or screws, represented at H. These pins or screws take hold of the joist, the heads dropping down far enough to allow the sections to drop down an inch or two and sufficiently to permit the heated air to pass up. When the openings are to be closed, the sections are raised and the forked wedges I are put in, each wedge being supported on the head of the screw and bearing against the cross-pieces of the sections in a manner to hold them tightly against the ceiling and close the openings. When the wedges are removed, the sections will drop down and rest upon the heads of the screws, making sufficient space for the heat to pass up through the openings in the ceiling and floor directly into the pews or slips.

The basement-room is represented at J. This is provided with suitable number of stoves or furnaces to furnish the requisite amount of heat. It may be partitioned off into any number of rooms, each room being provided with a stove or furnace, or it may be in one large room, and in either case otherwise used for the ordinary purposes of a basement.

The basement will be provided with suitable window (shown at K) for the admission of fresh air.

The same means herein described for heating (excepting the stoves and furnaces) may be successfully used in warm weather for

ventilating and cooling. To facilitate this, ice may be used at the windows or registers where fresh air is admitted.

The upper part of the church room or hall should be provided with suitable registers for the escape of impure air.

The benefits arising from this invention are: First. Economy in fuel and economy in the distribution of heat. The heat being used before it mixes with the cold air above, and being conducted directly into the pews where it is most needed, much less will answer the purpose, and the room can be occupied with comfort soon after the fires are lighted; second, the heat is applied so as to keep the floor warm, and consequently the feet and lower extremities of the body will be warmed, while the head is comparatively cool. In the present mode of heating public buildings by furnaces or stoves within the room the heat rises to the upper ceiling and descends upon the heads of the audience, leaving the feet and lower extremities cold, and the whole volume of air within the room must be heated before the audience feel its effect. Hence it requires much time and a large quantity of heat to make the room comfortable. My improvement affords a remedy for these difficulties.

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

Making the floors of church buildings and other public halls with open joints or perforations, which open joints or perforations are provided with movable stops D, for regulating the passage of the air through these openings, in connection with a basement or lower room having suitable stoves or furnaces for producing the requisite amount of heat, so that the heat from this lower room may be conducted directly through the floor into the pews or slips, substantially as described.

EDWIN J. HARDY.

Witnesses:
GEO. W. WALLACE,
E. B. FORBUSH.