No. 892,431. PATENTED JULY 7, 1908.

S. W. JOY.

HOT AIR REGISTER.

APPLICATION FILED APR. 18, 1904.

2 SHEETS—SHEET 1.

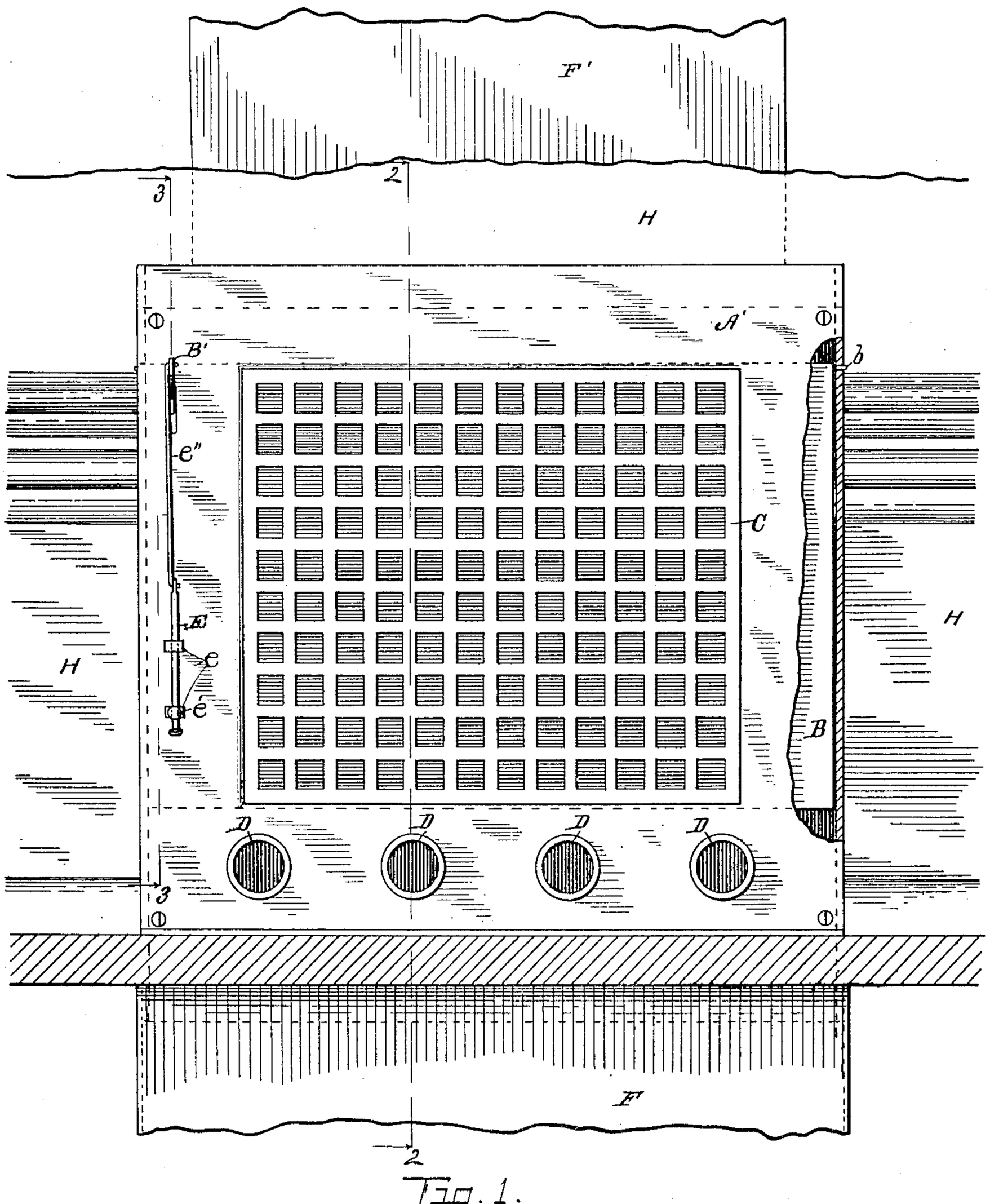

Fig. 1.

Witnesses:
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2 SHEETS—SHEET 2.

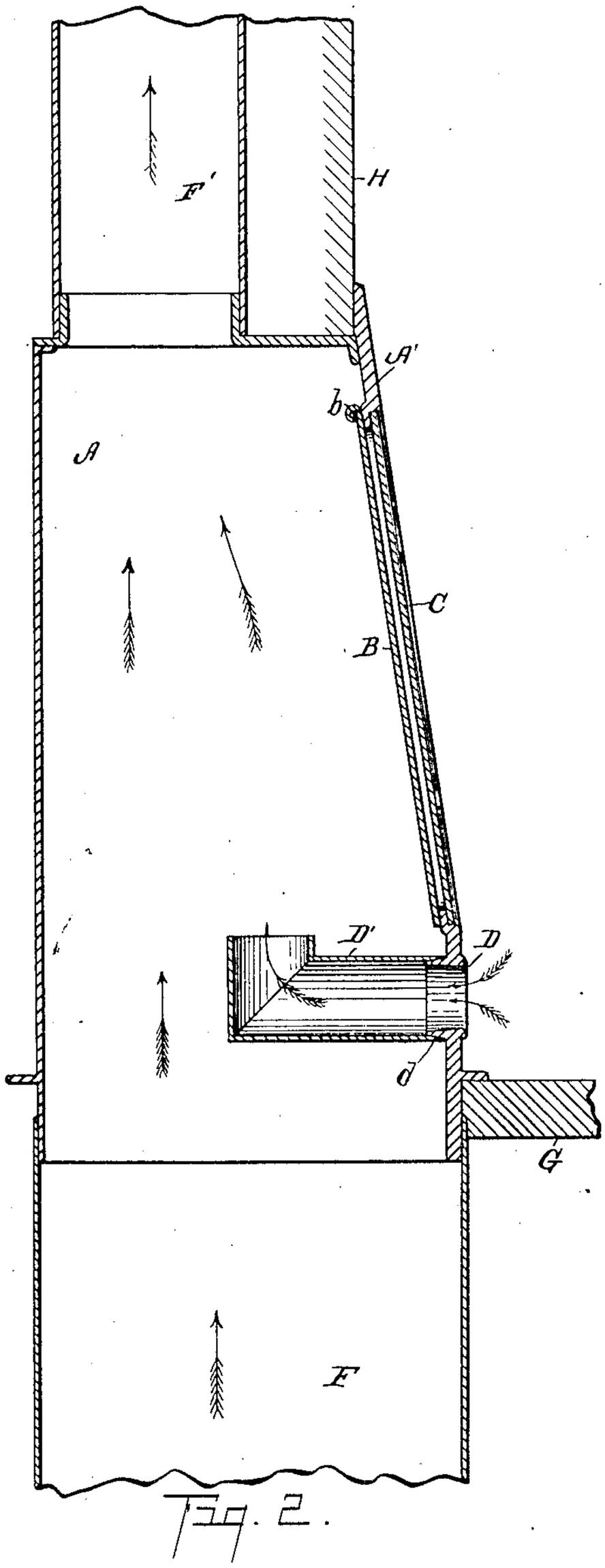

Fig. 2.

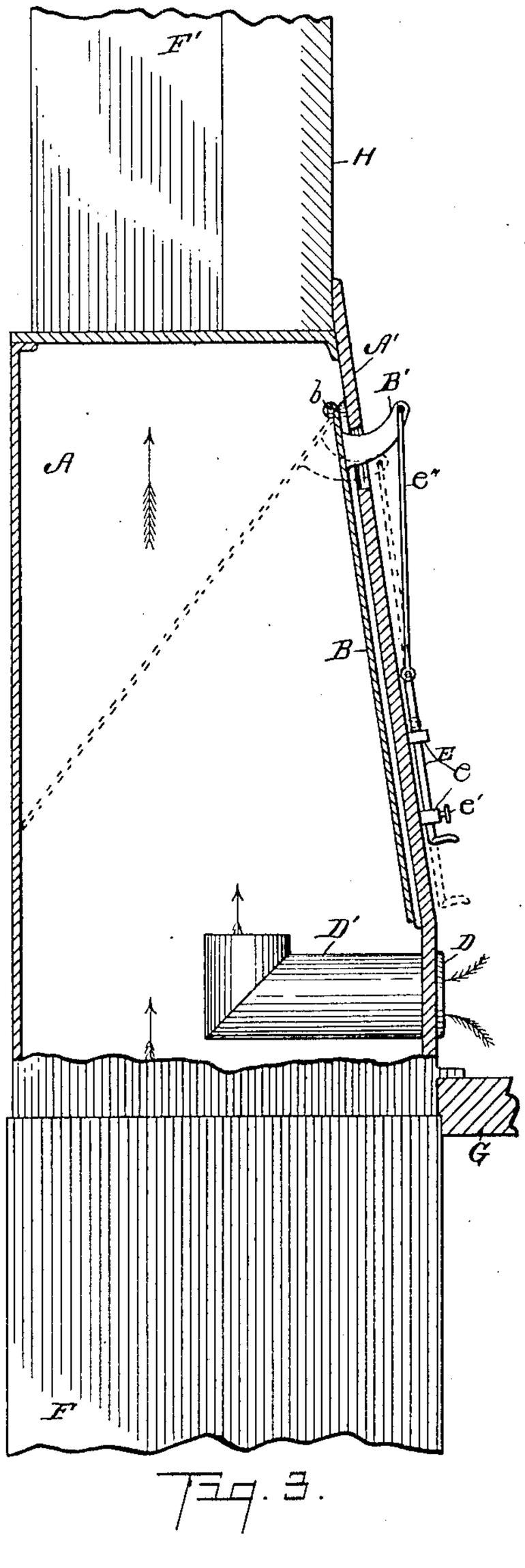

Fig. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL W. JOY, OF BATTLE CREEK, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO JUSTIN SIGRIST AND ROBERT B. MARTIN, OF BATTLE CREEK, MICHIGAN.

HOT-AIR REGISTER.

No. 892,431. Specification of Letters Patent. Patented July 7, 1908.

Application filed April 18, 1904. Serial No. 203,723.

To all whom it may concern:

Be it known that I, SAMUEL W. JOY, a citizen of the United States, residing at the city of Battle Creek, in the county of Calhoun, State of Michigan, have invented certain new and useful Improvements in Hot-Air Registers, of which the following is a specification.

This invention relates to improvements in warm air registers.

The objects of this invention are, first, to provide an improved warm air register adapted to produce a circulation of the air in the room to be heated, whereby the same will be quickly and evenly heated. Second, to provide an improved warm air register, by which the cold air is drawn from the room and warmed by mixing it with the warm air in the register. Third, to provide an improved warm air register adapted to serve as a ventilator for the room in which it is used.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which—

Figure 1 is a detail front elevation view of a structure embodying the features of my invention, portions being broken away to show the relation of the parts, the same being illustrated in position in a wall. Fig. 2 is a detail vertical sectional view taken on a line corresponding to line 2 2 of Fig. 1. Fig. 3 is a detail vertical sectional view taken on a line corresponding to line 3 3 of Fig. 1, showing the means for adjusting the damper.

In the drawings similar letters of reference refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawings, A is the box of a warm air wall register. I provide a frame-like face plate A′ for the register box, having a suitable central opening for the register grate C. A door-like damper B is pivoted at its upper end on the pivot rod *b*. This damper shuts down over the register grate opening when closed. This damper B is adjusted by means of the rod E, which is slidably supported by the brackets *e* which project outwardly from the face plates A′. A set screw *e′* is provided for securing the rod in its adjusted position. This adjustable rod E is connected to the outwardly projecting arm B′ on the damper B by a link *e″*. Thus arranged, by adjusting the rod E up and down, the damper B is opened or closed, or adjusted as desired. This damper extends practically across the register box, so that by its adjustment the delivery of the air through the register is controlled.

The face plate A′ is provided with a series of openings D, which, when the register is in position in the wall, open into the room near the floor, as G. The face plate A′ is provided with inwardly projecting flanges *d* about these openings D to receive the delivery pipes D′ which project into the register box. These pipes are provided with an elbow at their inner end, so that they deliver upwardly, as clearly appears from the drawings. These cold air draft pipes are preferably formed of sheet metal, so that they are readily warmed by the warm air passing about them.

The register box is connected to the hot air pipes F F′ in the usual manner. The pipe or conduit F delivers air from the furnace, and the conduit F′ leads to an upper room or ventilator shaft.

In operation, the damper B is adjusted so that the desired amount of the warm air passing through the register box is delivered into the room. The draft caused by the warm air and the heating of the pipes D′ draws the cold air of the room therethrough into the register box where it is mixed with the warm air and again thrown out into the room or conducted away through the pipe F′, according to the adjustment of the damper B. This causes such a circulation of air in the room that the air soon becomes evenly warmed. As the cold air is drawn from the floor, it is evident that the temperature in the upper part of the room and the lower part, tends to maintain an equilibrium, so that it is kept as near even as is possible.

When the damper is closed the foul and cold air is drawn from the room and delivered through the conduit F′, thereby serving as a ventilator for the room. This result will be accomplished even though hot air is not being delivered from the furnace, al-

though of course when hot air is passing through the register, a force draft is insured.

My improved warm air wall register is comparatively simple and economical in structure. The face plate is preferably detachably secured to the register box so that the box may be inserted and the face plate attached, its edges lapping upon the wall H, so that it serves as a finish for the register.

I have illustrated and described my improved warm air register in detail in the form preferred by me on account of its structural simplicity and economy, and the ease with which it may be adjusted. I am, however, aware that it is capable of considerable variation in structural details without departing from my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a warm air register, the combination of a register box; conduits leading to and from said register box; a face for said register box having a suitable grate therein and a draft opening below said grate; an upwardly-opening draft pipe projecting into said register box from said draft opening; and a damper arranged in said register box above said draft pipe, said damper being hinged at its upper edge at the front of the said register box, and above the tip of the grate thereof, so that it may be swung rearwardly across said register box or forwardly to close said grate, or be adjusted to control the delivery of air through the grate and through said conduit leading from the register box, and also to control the air passing into the register box through said draft pipe so that it will circulate with the air passing through the grate with the air passing into the said conduit leading from the register box, as specified.

2. In a warm air register, the combination of a register box; conduits leading to and from said register box; a face for said register box having a suitable grate therein and a draft opening below said grate; and a damper arranged in said register box above said draft opening, said damper being hinged at its upper edge at the front of the said register box and above the top of the grate thereof, so that it may be swung rearwardly across said register box or forwardly to close said grate, or be adjusted to control the delivery of air through the grate and through said conduit leading from the register box, and also to control the air passing into the register box through said draft opening, so that it will circulate with the air passing through the grate with the air passing into the said conduit leading from the register box, as specified.

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

SAMUEL W. JOY. [L. S.]

Witnesses:
MARK H. COLEMAN,
BERNARD J. ONEN.