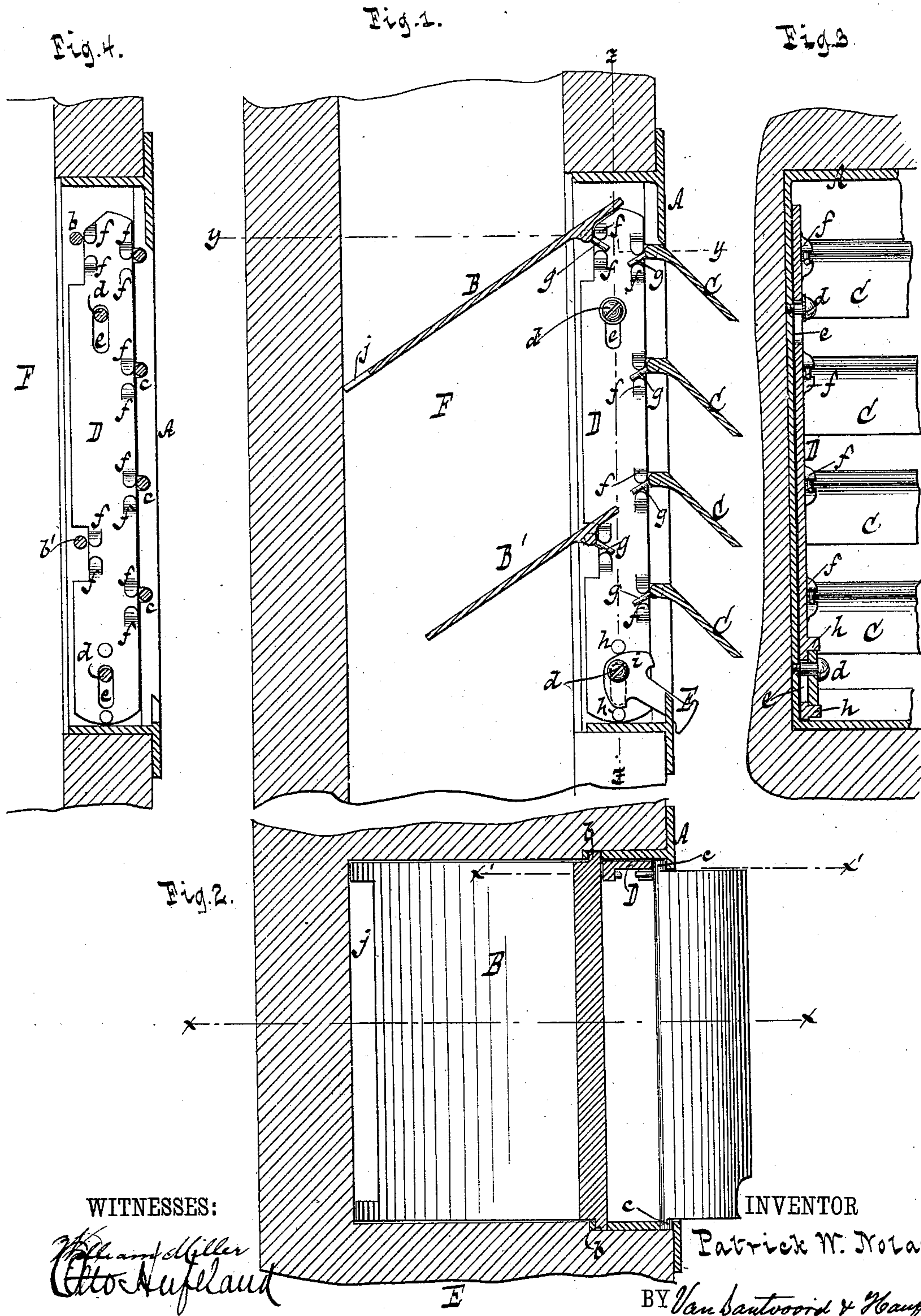


(No Model.)

P. W. NOLAN.  
HOT AIR REGISTER.

No. 270,832.

Patented Jan. 16, 1883.



WITNESSES:

*William Miller*  
*Otto Hufeland*

INVENTOR

*Patrick W. Nolan*

BY *Van Santvoord & Haupp*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

PATRICK W. NOLAN, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND  
CARLOS BARDWELL, OF SUMMIT, NEW JERSEY.

## HOT-AIR REGISTER.

SPECIFICATION forming part of Letters Patent No. 270,832, dated January 16, 1883.

Application filed November 10, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK W. NOLAN, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Hot-Air Registers, of which the following is a specification.

This invention relates to a hot-air register which is provided with two sets of valves, one set being arranged to open inward, while the other opens outward, both sets being opened and closed simultaneously by the same mechanism.

In the accompanying drawings, Figure 1 represents a vertical section in the plane  $xx$ , Fig. 2. Fig. 2 is a horizontal section in the plane  $yy$ , Fig. 1. Fig. 3 is a vertical section in the plane  $zz$ , Fig. 1, looking to the right. Fig. 4 is a vertical section in the plane  $x'x'$ , Fig. 2.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the frame, which is secured in the inner wall of the flue F, and in which are mounted two sets of valves, B B' C, the valves B B' being made to open inward, while the valves C open outward, as shown in Fig. 1. The valves B B' swing on gudgeons  $bb'$ , Fig. 4, respectively, which have their bearings in the side plates of the frame A, near their inner edges, and the valves C swing on gudgeons  $c$ , the bearings of which are also in the side plate of the frame, near their front edges.

Between the gudgeons  $b$ ,  $b'$ , and  $c$ , close to the inner surface of one of the side plates of the frame A, is situated a slide, D, which is retained by screws  $d$ , passing through slots  $e$  in the slide, so that said slide can be moved up and down. From the inner surface of the slide extend a series of projections,  $f$ , which are arranged in pairs, and each pair of projections acts upon a spur,  $g$ , extending from one of the valves B B' C, as shown in Fig. 1, so that by moving the slide down to the position shown in Fig. 1 all the valves are thrown open, and by moving the slide up all the valves are closed. From the inner surface of the slide D, near its bottom end, project two studs,  $h h$ , between which is situated the cam-shaped head  $i$  of a lever, E, which has its fulcrum on

one of the screws  $d$ . This head is so formed that by turning the lever E in one direction the slide D is moved down, and by turning said lever in the opposite direction the slide D is moved up. By these means a positive movement can be imparted to all the valves. The mechanism is simple and cheap in its construction. It must be remarked, however, that this mechanism might be changed without departing from the main point of my invention, and I do not wish to confine myself, therefore, to the precise mechanism shown in the drawings.

By referring to Fig. 1 it will be seen that the valve B is of greater length than the valve B', so that when the slide D is moved clear down the outer edge of the valve B strikes the outer wall of the flue F, while the outer edge of the valve B' leaves a free passage up through the flue for a portion of the hot air, while another portion is deflected and thrown against the valves C, and by these valves downward into the room. The outer edge of the valve B is provided with a recess,  $j$ , so that the passage of the hot air up through the flue is not entirely stopped when this valve is thrown wide open; but while a small portion of the hot air can still ascend through the flue the largest portion of the hot air is deflected against the valves C, and by these valves into the room. In order to insure this action, the upper ends of the valves B B' extend some distance beyond their gudgeons, as seen in Fig. 1.

By means of the lever E the position of the valves B B' C can be regulated so that more or less of the hot air escapes into the room containing the register, and the temperature of the room can be regulated with little trouble.

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

1. The combination, in a hot-air register, of two sets of valves, one set being arranged to open inward into the flue, while the other set is arranged to open outward into the room, substantially as and for the purposes shown and described.

2. The combination, substantially as hereinbefore described, of the frame A, the valves B B', opening inward, the valves C, opening outward, and mechanism for operating all the valves simultaneously.

3. The combination, substantially as herein described, of the frame A, the valves B B', the valves C, the slide D, provided with projections which engage with spurs extending from  
5 the several valves, and the cam-lever for operating the slide.

4. The combination, substantially as hereinbefore described, of the frame A, the two valves B B', of unequal length, hinged to said frame

and opening inward, and the recess *j* in the valve B.

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

PATRICK W. NOLAN. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.