E. C. FOX.

HOT AIR REGISTER.

APPLICATION FILED NOV. 29, 1907.

936,440.

Patented Oct. 12, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

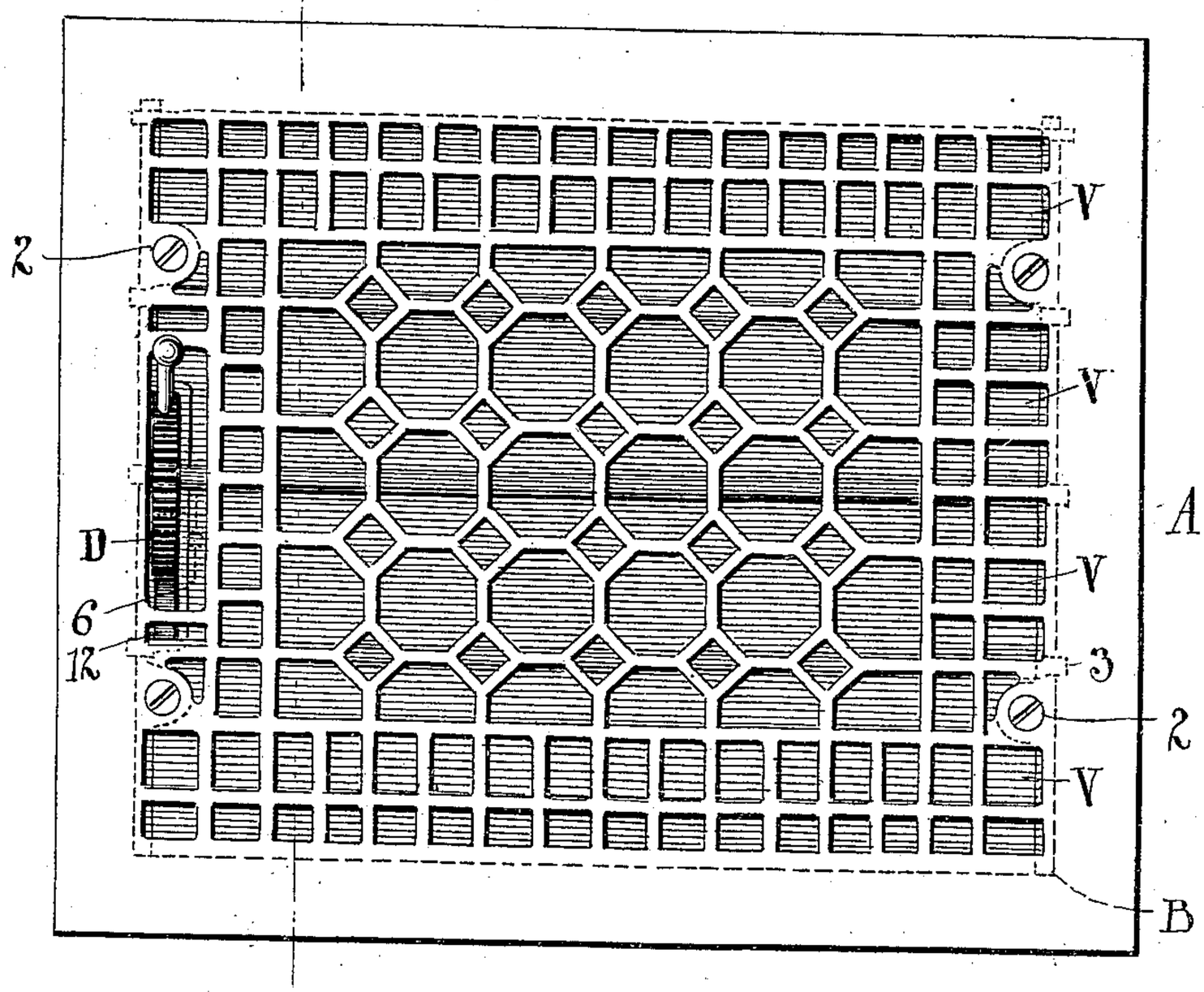


Fig. 2.

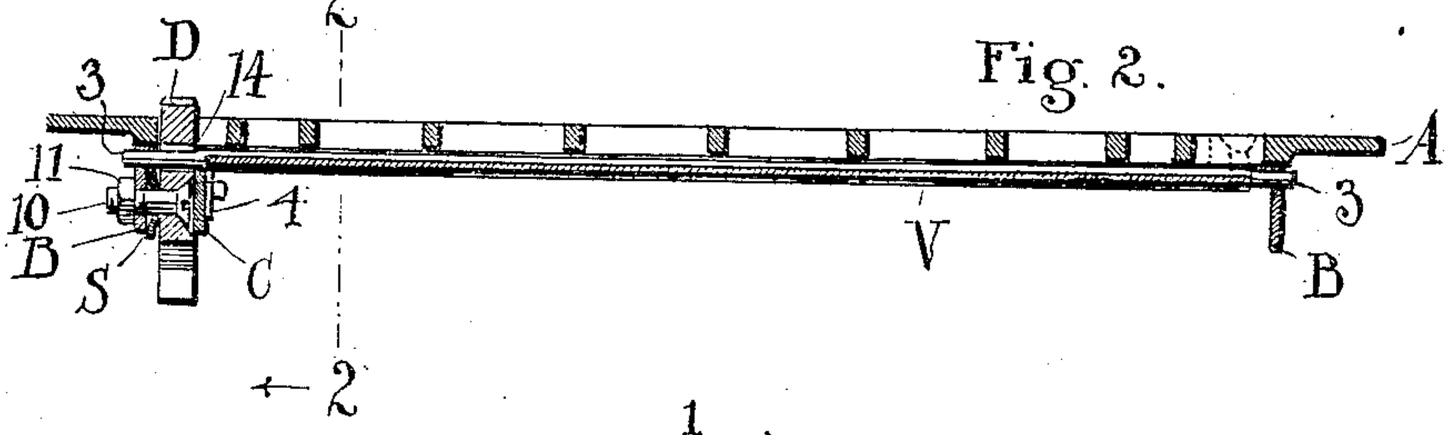


Fig. 3.

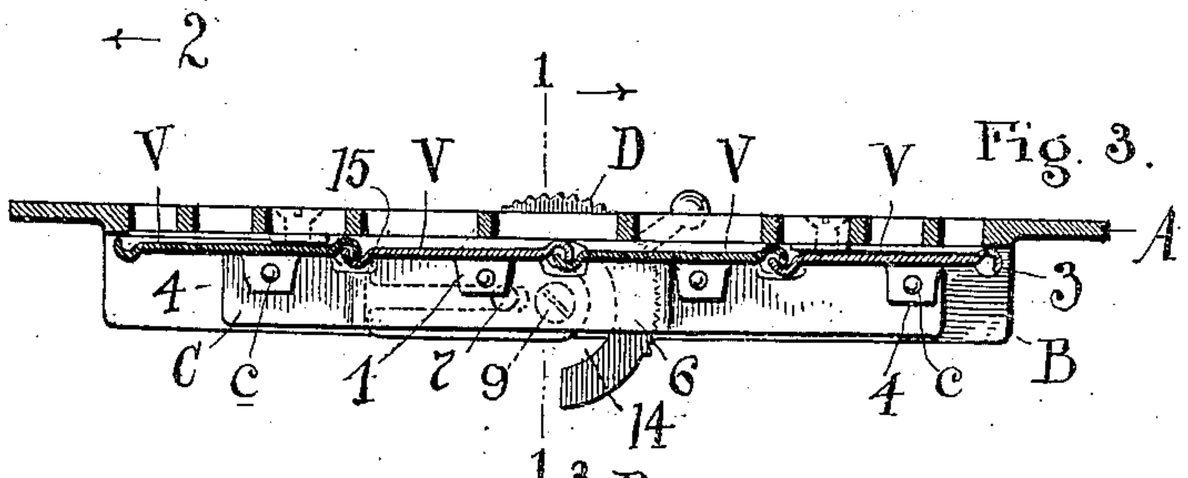
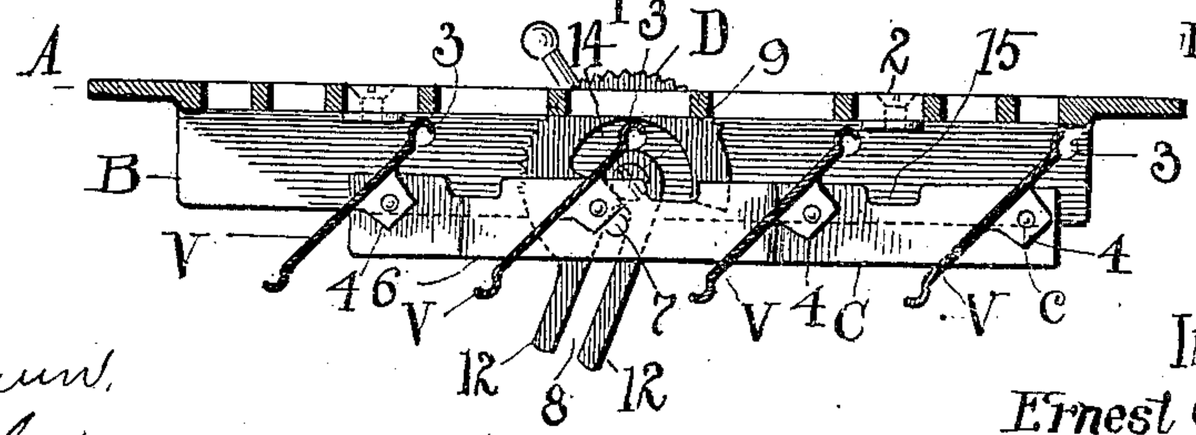


Fig. 4.



ATTEST

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2 SHEETS—SHEET 2.

Fig. 5.

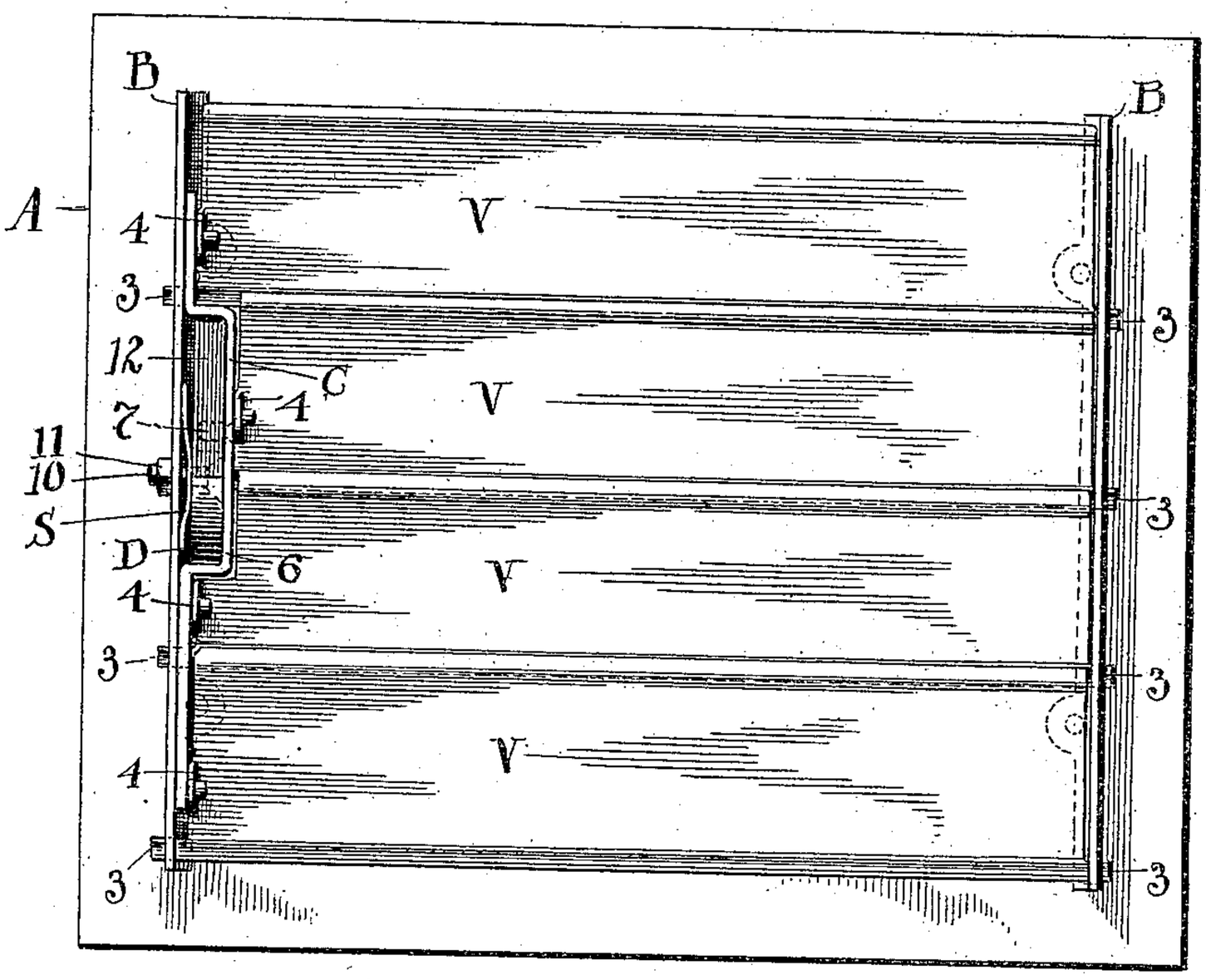


Fig. 6.

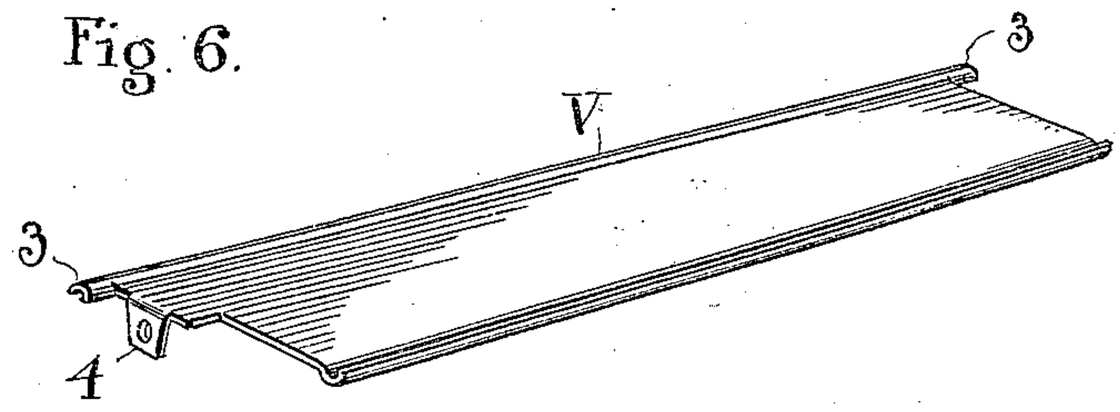


Fig. 9.

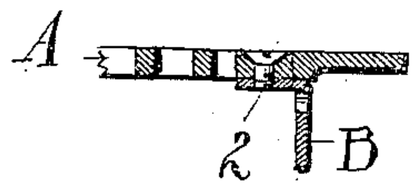


Fig. 7.

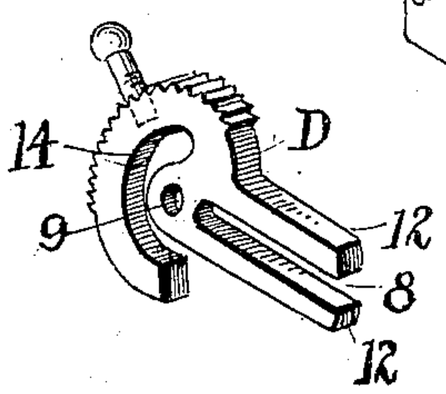
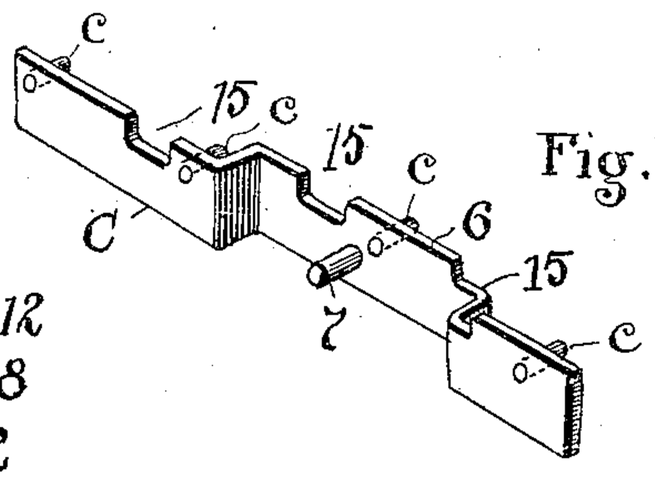


Fig. 8.



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UNITED STATES PATENT OFFICE.

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HOT-AIR REGISTER.

936,440. Specification of Letters Patent. Patented Oct. 12, 1909.

Application filed November 29, 1907. Serial No. 404,232.

To all whom it may concern:

Be it known that I, ERNEST C. FOX, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hot-Air Registers, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to hot air registers, and the invention consists in a novel construction of register having valve plates suspended from their edges and means to swing said plates on their pivots at said edges and to lock them in any adjusted position, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the register closed. Fig. 2 is a cross section on a line corresponding to 1—1, Fig. 3, looking to the right with the valves closed, and Fig. 3 is a cross section corresponding to line 2—2, Fig. 1. Fig. 4 is a cross section on the same line as Fig. 3 with the valves open. Fig. 5 is a bottom plan view of the register with the valves closed. Fig. 6 is a perspective view of one of the valve plates. Fig. 7 is a perspective view of the segmental lever for operating the valves. Fig. 8 is a perspective view of the valve connecting and operating member with which the foot lever has rocking engagement, and Fig. 9 is a sectional view across the corner of the register frame showing the means for connecting the right angled supporting plates for the valves to the floor plate.

As thus shown A represents a grated floor plate, which usually is cast and made of any preferred design, size and strength, and to this plate I affix valve supporting plates or strips B by means of screws 2 through ears on said strips entering threaded holes in plate A as seen in Fig. 9, or in any equivalent manner. The floor plate and said right angled strips constitute all there is of the register frame. Said strips have holes adapted to receive the pivots or trunnions 3 on the ends of valves V. It will be noticed as a peculiarity of said valves that their trunnions or pivots are immediately at the edges thereof and not at the middle, as is common, and said valves are preferably struck up from suitable sheet metal and with the said pivots 3 fashioned out of the same metal. Each valve or plate is also provided with a perforated ear 4 at its end bent at right angles to the side of the valve and adapted to make connection with pin *c* on valve operating member or bar C. Said bar has a shouldered offset 6 at its middle to make room for foot lever D and carries a pin 7 which engages in an open slot 8 in lever D. Said lever is pivoted at 9 by a pivot screw or bolt 10 which extends through side plate B in such relation that operating pin or projection 7 working in slot 8 is thrown far enough off center of pivot bolt 10 to give the requisite swing to the valve plates through bar C, the said pin 7 sliding more or less in slot 8 as operation occurs. The arms or extensions 12 having slot 8 between them are made their present length in order to fill the offset 6 on the corresponding side of the lever pivot and to close said space, which otherwise would be open to the passage of hot air from beneath. The said lever itself closes said space on the other side of the pivot.

Now, having this construction and arrangement of parts, it is obvious that as valve plates V are suspended from their edges, their joint weight would be such that they would naturally gravitate or swing to an open position when released and hence I require means of some kind which will both hold the valves in closed position when closed by lever D and remain in any intermediate or partially closed position to which they may be adjusted. To these ends I provide a friction spring S, interposed between lever D and fixed supporting plate B at or about the pivot bolt 10, and which can be tightened as much as may be required by turning nut 11 on said bolt 10. I might of course interpose or provide a different spring here or there between parts and get an equivalent effect, but the present construction serves every purpose and places the spring where it can be adjusted for effectiveness.

Special features of construction and adaptation are associated particularly with foot segment or lever D, and which are rendered necessary to make the device operative. Thus, it is seen that the pivot 3 of one of the intermediate valve plates unavoidably comes near the axis of rotation of said lever over the pivot of the same, and hence to ac-

commodate the pivot 3 of said plate and not interfere with operations of the lever I provide a concentric slot 14 in the lever which plays around said pivot 3, and carrying plate C is formed with recesses or cavities 15 in its edge which make room for said plate to be raised so as to perfectly close said valves, the recesses 15 coming about the pivot projections 3 of the valves. It will also be seen that there is no box as such in which the valves operate, and that said valves are swung directly from the pivot plates B, which serve also as centering and confining plates for the register frame in the floor opening. The two middle plates or valves V are as much shorter than the outer ones as the depth of offset 6, and the extension 12 of lever D closes the space within said offset which would otherwise be left open.

What I claim is:—

1. A hot air register having a series of valves suspended from their immediate edges and ends and means to operate said valves comprising a bar connecting the valves between the pivots and their outer edges in combination with a rotatable foot lever having an open slot operatively connected with said bar, and a friction spring interposed between said lever and the frame of the register and adapted to hold said valves in adjusted position and against their own tendency to swing open.

2. The register frame and the valves suspended from their edges and ends therein and having right angled ears in the rear at their end edges, in combination with a bar provided with a shouldered offset between its ends and having pins at intervals between its ends loosely engaged in said ears, an operating lever having an open slot and a pin centrally in said offset engaged in said slot and a friction spring adapted to hold all said parts in any adjusted position.

In testimony whereof I sign this specification in the presence of two witnesses.

ERNEST C. FOX.

Witnesses:

R. B. MOSER,

F. C. MUSSUN.