(No Model.)

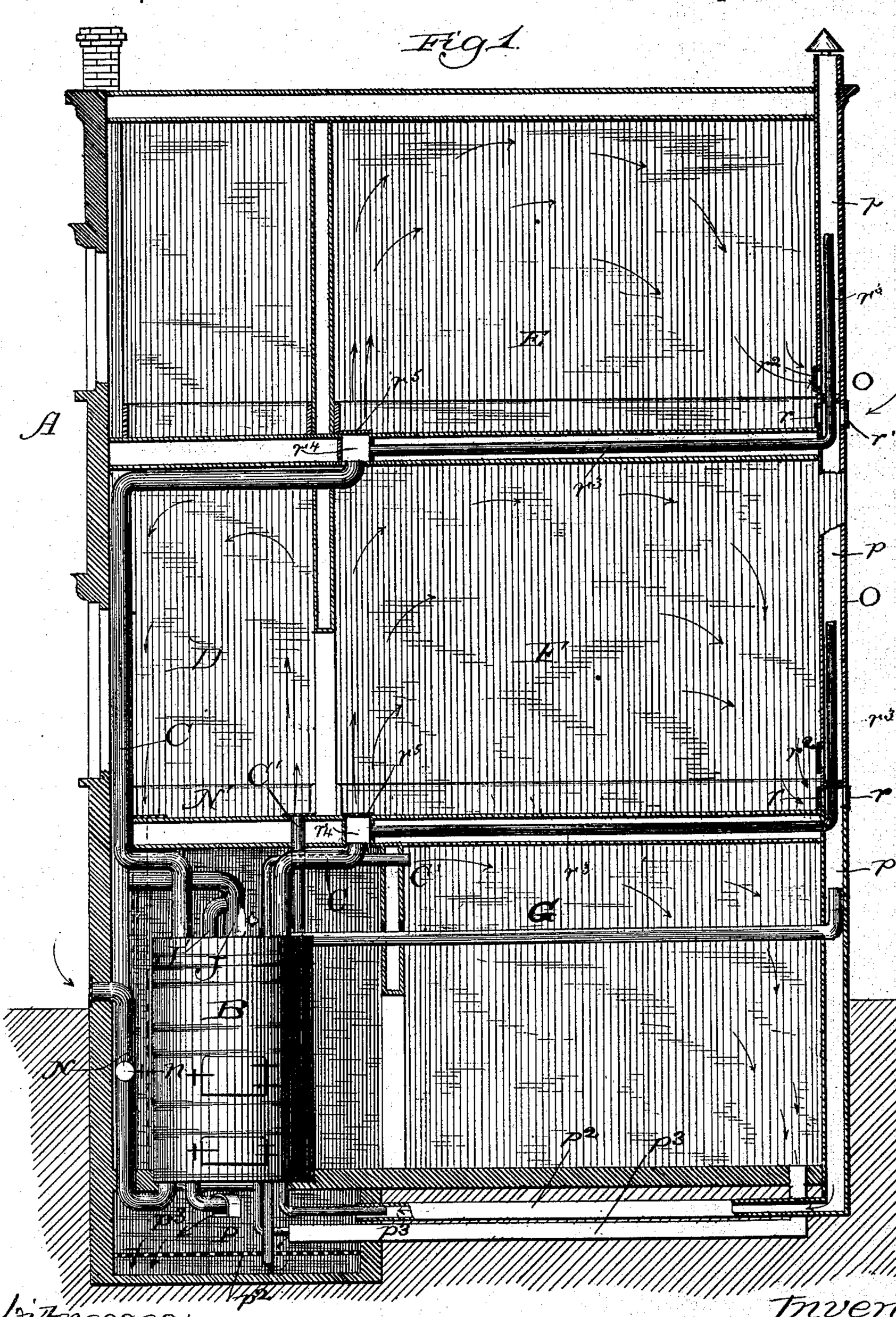
2 Sheets—Sheet 1.

I. J. ORDWAY.

VENTILATING BUILDINGS.

No. 326,055. Patented Sept. 8, 1885.

Fig 1.



Witnesses:
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Inventor.
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2

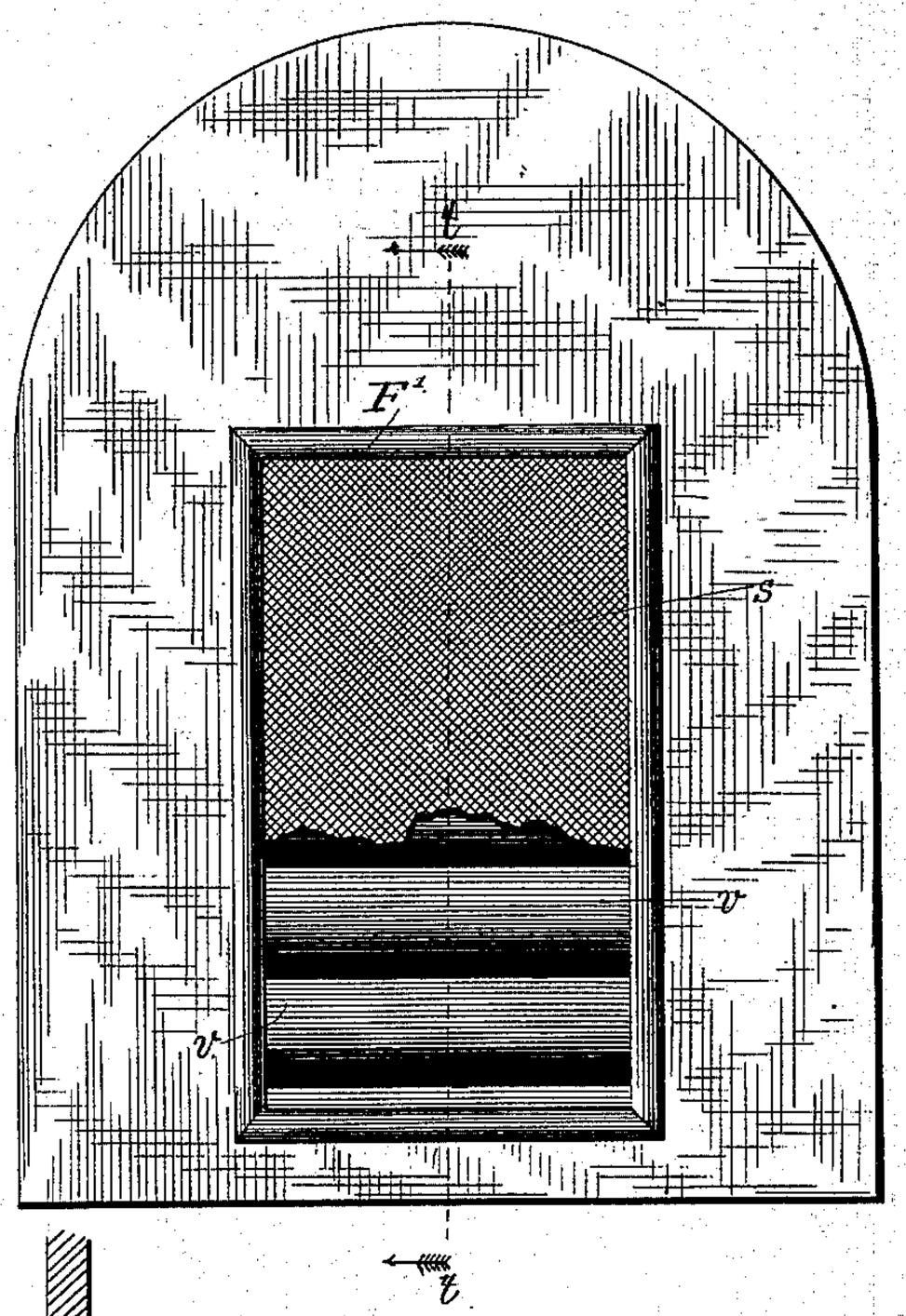

Fig. 3.

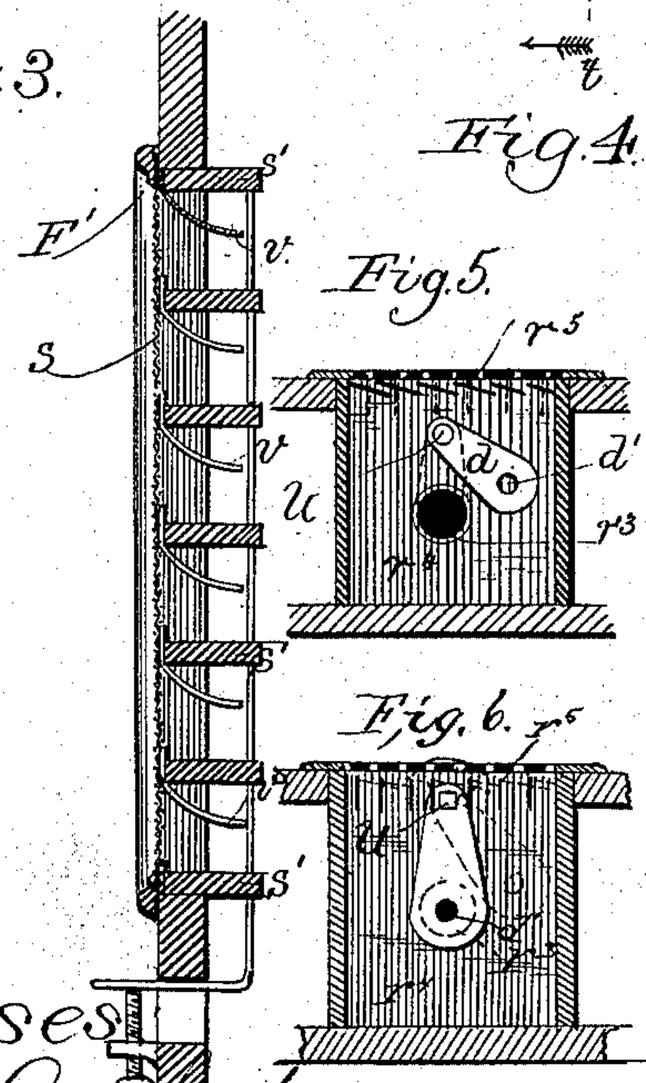

Fig. 4.

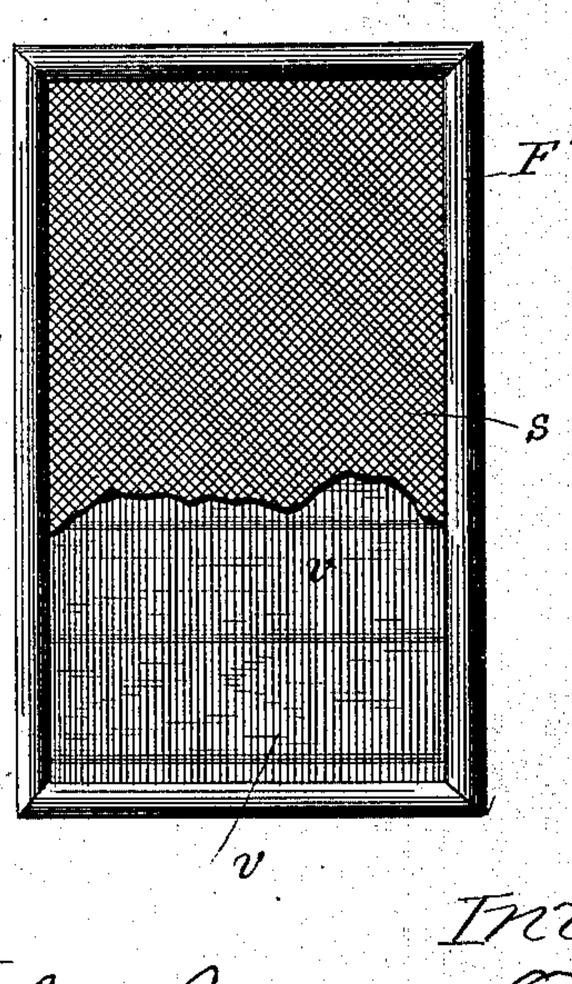

Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

IRA JAMES ORDWAY, OF CHICAGO, ILLINOIS.

VENTILATING BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 326,055, dated September 8, 1885.

Application filed December 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, IRA JAMES ORDWAY, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Ventilating Buildings, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, forming part of this specification.

This invention is primarily intended as an improvement on my method of and apparatus for heating and ventilating buildings, secured by Letters Patent No. 306,638, dated October 14, 1884; but it may be applied to various other kinds of ventilating apparatus, or even used independently.

This invention has for its object to provide a ventilating-register connected with a ventilating-flue, whereby cold or impure air may be removed from a building or room in such quantities as is desired, which register shall be automatic in its action, opening of its own accord to allow the cold or foul air to pass into the flue, and closing of its own accord whenever for any reason the draft in the flue may be reversed.

The invention has also for its object, by means of a pipe conveying heated air from the heater, or the pipes leading therefrom, or the box of a hot-air register to a ventilating-flue, to produce or increase the upward draft in said flue when the natural draft may prove to be insufficient for the needed ventilation.

The invention has also for its object to secure to the occupants of the building or room the easy and complete control and regulation of the supply of heated air to the above-mentioned pipe by means of a disk attached to one end of the revolving rod that opens and closes the hot-air register, so attached that when the register is wide open the end of the pipe shall be at least partially closed, and when the register is closed said pipe shall be principally or entirely open.

The novel features of my invention will be more particularly pointed out in the claims, hereinafter set forth.

In the drawings, Figure 1 is a vertical section of a house, showing my system of heating and ventilating buildings, as specified and claimed in the Letters Patent above referred to, and including two of the novel features herein claimed—namely, the ventilating-register r^2 and the pipe r^3, leading from the register-box r^4 to the ventilating-flue P. When the hot-air register r^5 is closed, a portion of the heated air conveyed by the pipe C from the furnace to the register-box r^4 passes through the pipe r^3 into the flue P and causes an upward current in said flue, drawing the foul air from the room by the register r^2. When the hot-air register r^5 is open, a smaller quantity of heated air is supplied to the pipe r^3, but still enough to insure a constant draft in the flue P. G represents a pipe which is connected at one end with the heating-pipe C or the furnace-chamber, its other end leading into the ventilating-flue P. Thus when it is desired to cut off the heat from the house it is conducted through the pipe G directly into the flue P and serves to accelerate the draft of the latter, by which the foul air is drawn through the register r^2.

Fig. 2 is a front view of the ventilating-register r^2 with a part of the screen s cut away, showing two of the flexible valves v standing partly open. In this position of the valves, there being an upward draft in the flue P, the foul air of the room passes freely into the flue.

Fig. 3 is a sectional view of the ventilating-register r^2 along the dotted line $t\,t$. F′ is the frame of the register. $s'\,s'$ are slats extending backward from the screen s. $v\,v$ are the flexible valves, which may be made of paper, cloth, or other suitable material. These valves are represented in the figure as partly open. They are fastened at or near the front edges of the slats, beyond which they project upward, so that when the valves are closed their edges lap over each other, forming a close joint.

Fig. 4 is a front view of the ventilating-register r^2, showing the valves v closed. This will be their position whenever there is a downward draft or no draft at all in the flue P. It will be seen that the occupants of the room can see at a glance whether the ventilation is going on or not. The slats s may be stationary or they may be hinged at their front edges, in which case they may be closed entirely or set at any desired angle.

Fig. 5 is an end view of the hot-air register r^5 and the register-box r^4, showing the revolving disk d, by means of which the supply of heated air to the pipe r^3 is regulated. Fig. 6 is a similar view showing a modified construc-

tion. U is one end of the revolving rod, by means of which the register is opened and closed. To this rod is attached the disk *d*, which revolves with the rod. This disk is a little larger in width than the open end of the pipe r^3, so that when it comes into the proper position it closes the pipe and cuts off the supply of heated air from the same. This it does when the register is fully open, as is represented by the dotted lines. When the register is closed, however, the pipe r^3 is left open, and receiving the heated air, which it conveys to the flue P, almost instantly produces an upward draft in said flue and establishes the ventilation. But as it is not desirable to cut off the entire supply of heated air a small hole, *d'*, is made in the disk *d*, which furnishes the needed supply when the hot-air register is open. It will be readily seen that if a larger quantity of heated air needs to be furnished to the pipe r^3 than the small hole *d'* can furnish the object can be attained by setting the disk so that it shall not entirely close the pipe when the register r^5 is open.

The chief advantages resulting from my invention are the following: First, when the supply of heated air is cut off from the room by the closing of the register r^5, the accelerated draft in the flue P, caused by the rush of heated air through the pipe r^3, causes the ventilation of the room to proceed with increased activity, whereas on any other plan that I am acquainted with to close the hot-air register is practically to arrest the ventilation; second, the action of the pipe r^3, in carrying off a portion of the heated air when the register r^5 is closed, prevents the overheating of the air in the pipe C, which would otherwise result from closing the register.

I am aware that the smoke-pipe from the heating apparatus in the ventilating-flue and otherwise has been used to force ventilation. These constructions, which I disclaim, differ from my invention in that my aspirating-shafts are warmed by a portion of the air from the heating apparatus, and no use is made of the smoke-flue for this purpose.

What I claim is—

1. The valves *v v v*, in combination with the slats *s s s*, hinged in front, and capable of being entirely closed or set at any desired angle, thus, by arresting the motion of the valves, controlling the size of the air-passages and the quantity of air that can pass in a given time, substantially as described.

2. The combination of a heater or a heating-pipe communicating with the chamber to be heated, and a branch pipe leading from the heater or its connections to the ventilating-flue, whereby the hot air from the heater may either be used for heating or for exhausting foul air from the chamber by accelerating the draft of the ventilating-flues, as shown and described.

3. The connecting-pipe r^3, in combination with the hot-air-register box r^4, and the ventilating-flue P, so constructed and combined that said hot-air-register box, by means of said connecting-pipe, shall furnish to said ventilating-flue directly from the hot-air supply a current of heated air, thus forcing the exhaustion of foul air from any and every room connected with said flue.

4. The pivoted disk *d*, in combination with the hot-air register r^5, these parts being connected as described, so that the movement of the register in opening and closing will, by operating the disk, open and close the pipe r^3, that leads to the ventilating-flue P, substantially as described.

5. The disk *d*, attached to the hot-air register r^5, and made adjustable by means of a set-screw or other suitable device, and combined with the register, as described, so that when the register is open said disk shall either partially or entirely, as may be desired, close the end of the pipe r^3, thus giving complete control of the volume of heated air that shall at any given time be supplied to the ventilating-flue P, substantially as set forth.

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