G. LAWRENCE.

Air-Register.

No. 160,688. Patented March 9, 1875.

Fig. 1.

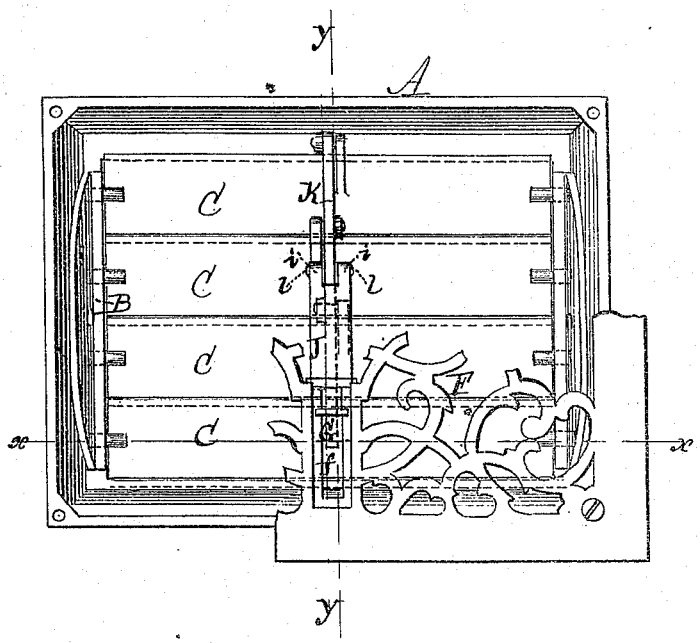


Fig. 2.

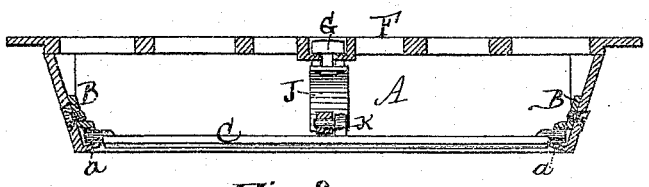


Fig. 8.

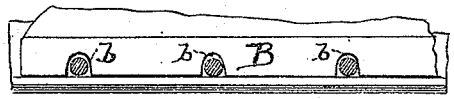


Fig. 6.

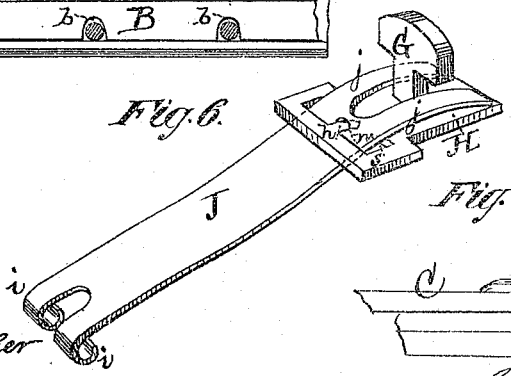


Fig. 4.

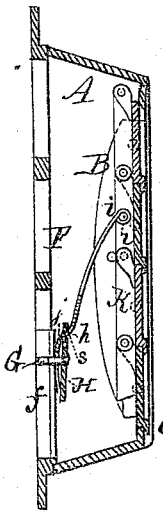


Fig. 5.

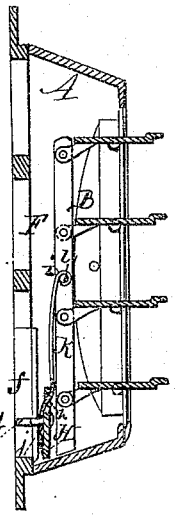


Fig. 3.

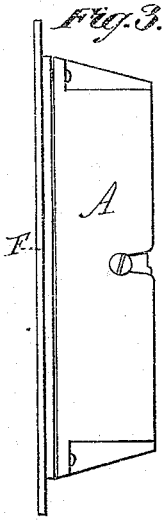
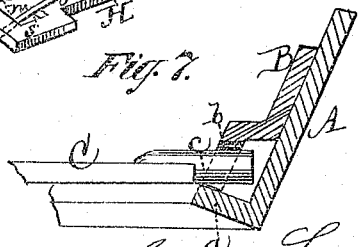


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE LAWRENCE, OF WILLIAMSBURG, BROOKLYN, NEW YORK.

IMPROVEMENT IN AIR-REGISTERS.

Specification forming part of Letters Patent No. **160,688**, dated March 9, 1875; application filed December 23, 1874.

To all whom it may concern:

Be it known that I, GEORGE LAWRENCE, of Williamsburg, in the city of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Registers and Ventilators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification.

My invention consists, first, in a novel construction and combination of the slide and connection, whereby the latter is made to form a spring and hold the fans open or closed, or at any desired angle of inclination between an open and closed position.

The invention consists, further, in a novel construction of the fan-frame and a plate attached thereto, whereby the ends of the fans are made to work freely and accurately in their bearings, and the amount of friction thereon is lessened.

In the accompanying drawing, Figure 1 is a top or face view of a register constructed according to my invention. Fig. 2 is a section taken in the line *x x* of Fig. 1. Fig. 3 is an end view. Fig. 4 is a section taken in the line *y y* of Fig. 1, showing the fans closed. Fig. 5 is a similar view, showing the fans open. Figs. 6, 7, and 8 are detail views, hereinafter particularly referred to.

A represents the fan-frame of a register or ventilator, provided with the usual ornamental grating or open face F. In the face F is a slot, *f*, in which works the slide G, for operating the fans. This slide has its lower end attached to a buckle, H, provided with a tongue, *h*. The slide is connected with the fans C by means of a metallic bar or strap, J, (see Fig. 6,) one end of which is provided with hooks *i*, which engage with studs *l* projecting from the bar K, to which the fans are pivoted. The other end of the strap J is divided into two branches, *j j*, which pass through the slot *s* in the buckle H, and rest upon the outer side of said buckle, one on each side of the slide G, the tongue *h* passing through a hole, *m*, in the strap and preventing displacement. The branches *j j* are curved upward or outward, so as to form a spring, which bears against the under or inner side of the face F on each side of the slot *f*.

When the slide G is moved in either direction, to open or close the fans, or to place them in intermediate position, the tension of the spring *j j* against the grating or face F serves to hold the fans in any position in which they are placed, either in an open or closed position, or at any angle of inclination between said positions.

The fan-frame A is formed with an inwardly-projecting flange, *a*, on its lower or inner edge. B represents one of two plates, which are secured to the inner sides of the frame, opposite to each other.

Heretofore it has been the custom to form semicircular bearings in both the plate and the flange of the fan-frame, to receive the pivots of the fans.

Instead of this, however, in my invention the pivots rest directly upon the straight edge of the flange *a*. (See Fig. 7.) For the purpose of holding them in place, and securing their free and accurate working in their bearings, the plate B is formed with semi-elliptical or arch-shaped notches *b*, (see Fig. 8,) the depth of which is greater than the diameter of the pivots *c* of the fans C.

By this construction the pivots are allowed to work freely and accurately, and there is no necessity for casting notches in the flange *a* of the fan-frame. Moreover, the notches *b* may be sufficiently large to render unnecessary any considerable amount of finishing or dressing after the plate is cast.

The flanges *a* of the fan-frame are beveled or inclined downward toward the outer side of the frame, so that the pivots *c* rest only upon the extreme edges of said flanges.

By this construction the bearing-surfaces for the pivots are so narrow that it is not necessary to smoothly dress and finish the pivots after casting in order to reduce the friction, as would be the case if the bearing-surfaces were made broad in the usual way.

This register or ventilator may be used either in a horizontal floor or a vertical wall. When used in a wall it should be arranged so that the fans will be inclined downward to-

ward the interior of the room when partially open, so as to drive the heated air downward toward the floor when used for warming purposes, or to allow the air to readily escape from the room when used as a ventilator.

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

1. The combination, with the fans C and grating F, of the slide G, the buckle H, and the connecting bar or strap J, formed with the spring or elastic branches *j j*, substantially as and for the purpose shown and described.

2. The plates B, formed with the arch-shaped notches *b*, in combination with the straight-edged flanges *a* of the fan-frame, substantially as shown and described.

3. The flanges *a*, beveled or inclined downward toward the outer sides of the frame, in combination with the notched plates B and the pivots *c* of the fans, substantially as and for the purpose shown and described.

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