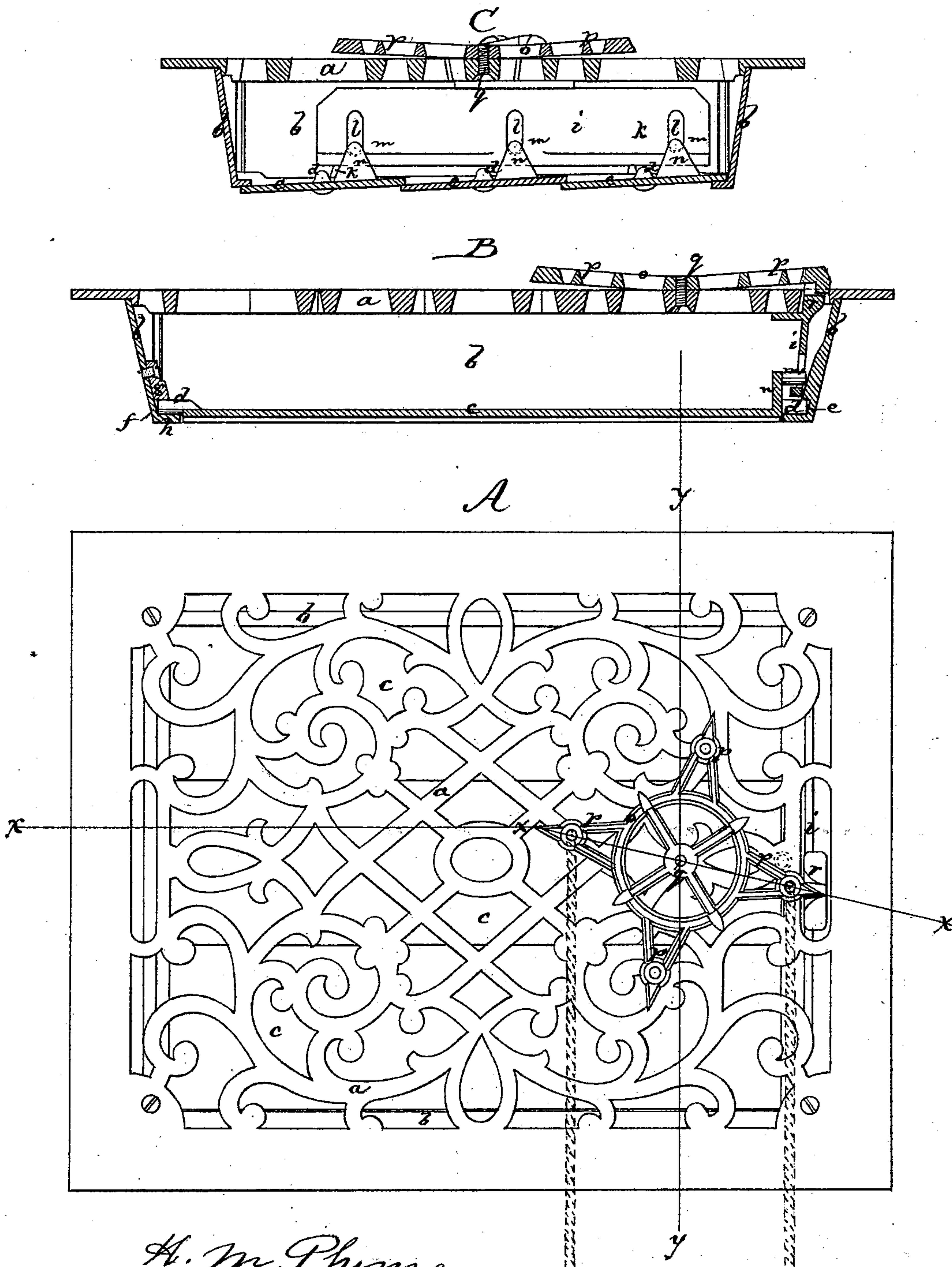


H. M. PHINNEY.  
Hot-Air Register.

No. 95,510.

Patented Oct. 5, 1869.



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# United States Patent Office.

HUGH M. PHINNEY, OF CAMBRIDGE, MASSACHUSETTS.

Letters Patent No. 95,510, dated October 5, 1869.

## HOT-AIR REGISTER.

The Schedule referred to in these Letters Patent and making part of the same

### To all whom it may concern:

Be it known that I, HUGH M. PHINNEY, of Cambridge, in the county of Middlesex, and State of Massachusetts, have invented Improved Hot-Air Registers; and I do hereby declare that the following, taken in connection with the drawings, which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

The invention relates to the construction of hot-air registers, with particular reference to provision for adaptation of the register both as a wall-register or as a floor-register; the invention also relating to the manner of pivoting valves, or to the construction of the valve-frame with reference to pivoting the valves.

The invention consists primarily in hanging, upon the front or outer side of the register-plate, a star or pointed lever, one arm or point of which projects into the slot of the slide by which the valves are worked, while two other arms or points project in opposite right-angular directions from the first arm, and serve for the attachment of vertically-hanging cords or lines, by means of which the lever is worked to actuate the slide, and open and close the valves.

The invention further consists in casting in one side of the frame, in which the valves are pivoted, (the four walls of which frame are cast integral,) pivot-bearings, into which the pivots at one end of the several valves are inserted endwise, a suitable plate holding down the opposite pivots.

The drawings represent a hot-air register embodying my improvements.

A shows a plan of the register.

B, a section on the line *x x*.

C, a section on the line *y y*.

*a* denotes the register-plate.

*b*, the box-frame by which the register is set into a wall or floor, and in which is hung the series of blades or valves *c*, by opening and closing which the passage of hot air through the register is regulated.

Each valve *c* has, at its opposite ends, pivots *d d*, by which the valve is sustained; these pivots being hung in bearings *e f* formed on the frame *b*.

At one end of the frame each bearing extends into the vertical wall, as seen at B, and thereby supports the pivot on all sides, while at the other end a bearing-plate, *g*, is screwed to the wall, as seen at B, the slots in this plate, and the corresponding slots or depressions in the flange *h* of the frame, forming the bearings for the adjacent pivots.

By forming the bearings for the valve-pivots at one end of the valves, directly in the end wall, and so that the bearings surround the pivots, and making the bearings at the other end, one-half in the flange *h* and one-half in the plate *g*, I dispense with an independent bearing-plate at one end of the register, first slipping the pivots endwise into position into the bearings *e*, and

then dropping the other pivots into the flange-bearings *f*, and fastening over them the plate *g*.

At the end of the register where the bearings *e* are located, is the slide *i*, by which the valves are opened or closed.

This slide rests and moves upon projections *k*, and does not touch the valve-pivots. It has a series of slots *l*, into each of which projects, respectively, a pin, *m*, extending from an ear, *n*, cast upon each valve.

On the upper end of the slide is a projection, *r*, which, extending through the register-plate *a*, serves to operate the slide, to open or close the register.

When the register is set into a floor, the slide may be moved by the foot or by the hand applied to the projection *r*; but to enable the register to be as easily operated when placed at the top of a wall, I apply the star-wheel or lever *o*.

This lever is made with three or more arms *p*, the end or point of one of which projects into a slot in the slide-projection *r*, as seen at A, while to the end of the two arms, projecting right-angularly from this arm, are attached the vertically-hanging cords, by means of which the lever is actuated, the lever being fulcrumed on a screw-pin, *q*, at the centre, from which the arms radiate.

Where a square or oblong radiator, like that shown in the drawings, is used, the wheel or lever has or may have four radial arms *p*, so that whether the register be set horizontally or vertically, (as regards its length,) the two arms will be in position for attachment of the cords.

When a round register is used, a lever with only three arms is preferred.

The lever or wheel is hung to the plate *a* by the screw-pin *q* inserted from the back of the plate *a*, and passing through the plate *a*, as seen at B and C, and by opening the valves, the screw may be reached with a screw-driver, thus enabling the lever or wheel to be applied or removed, as may be desirable.

When the register is to be used at or in a floor, the wheel is removed, but when it is to be used in a wall near the ceiling, the wheel is applied and operated as described.

Thus it will readily be seen that the register is equally well adapted for use in either position, and the register being made for sale with the lever or wheel attached, it may be used in either position without other change than the simple removal of the wheel if the register is to be placed at the top of a wall.

I claim, in combination with a hot-air register, the wheel or lever *o*, when applied to the outer side of the plate *a*, and in a plane parallel therewith, to operate the valve-actuating slide, substantially as described.

HUGH M. PHINNEY.

Witnesses:

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