H. W. SYMONDS.

HOT AIR REGISTER.

APPLICATION FILED DEC. 12, 1913.

1,233,523.

Patented July 17, 1917.

3 SHEETS—SHEET 1.

Fig. 1

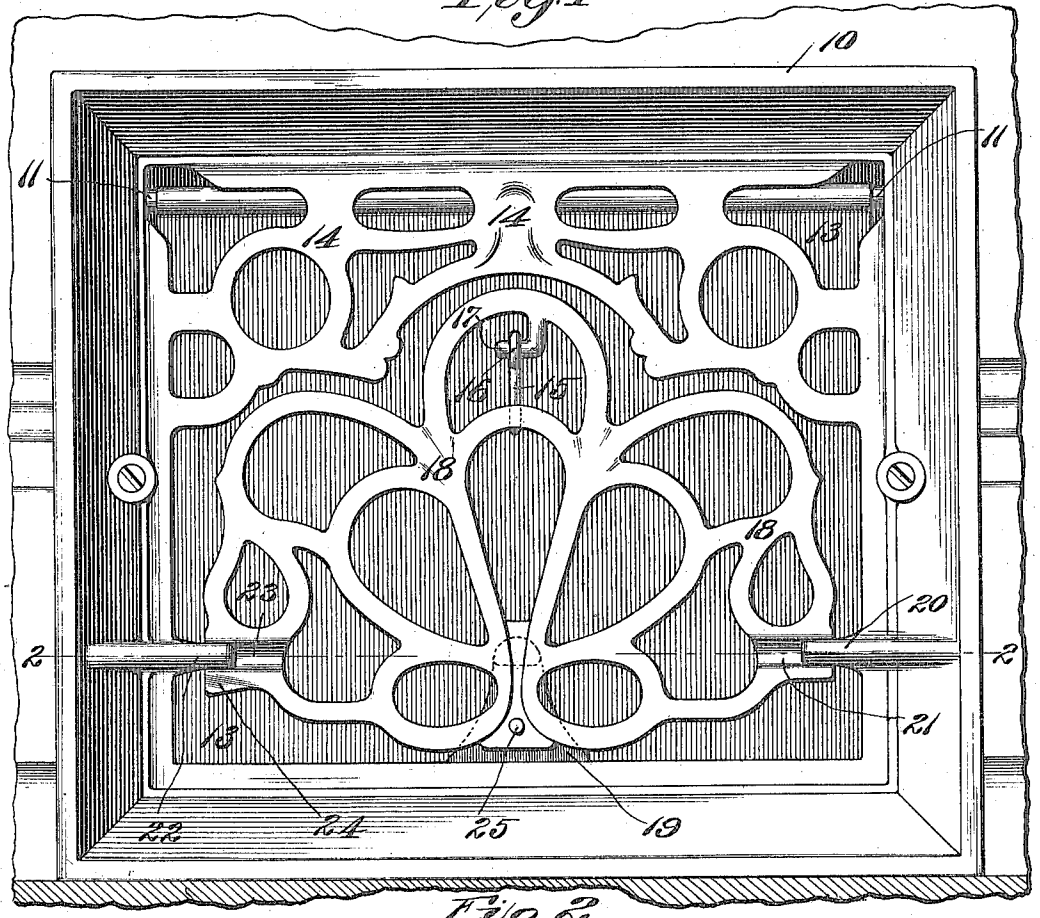
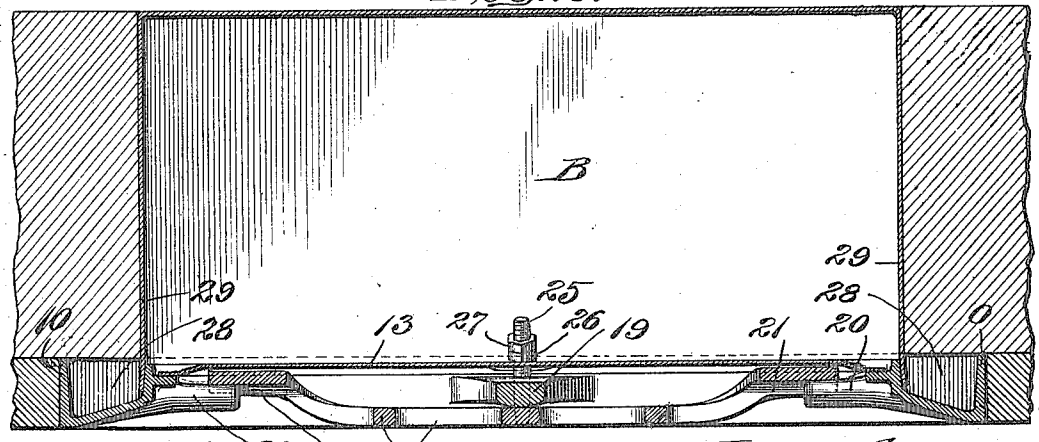


Fig. 2.



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Wm. N. Scott.

N. E. Brockman.

Inventor:

Herbert W. Symonds.

by J. R. Hopkins,

Atty.

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3 SHEETS—SHEET 2.

Fig. 3.

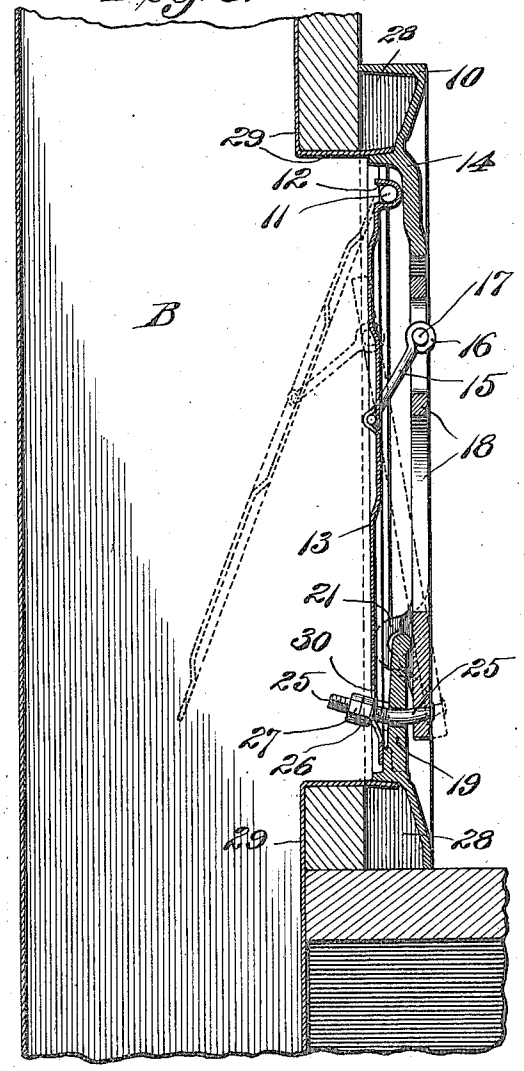


Fig. 4.

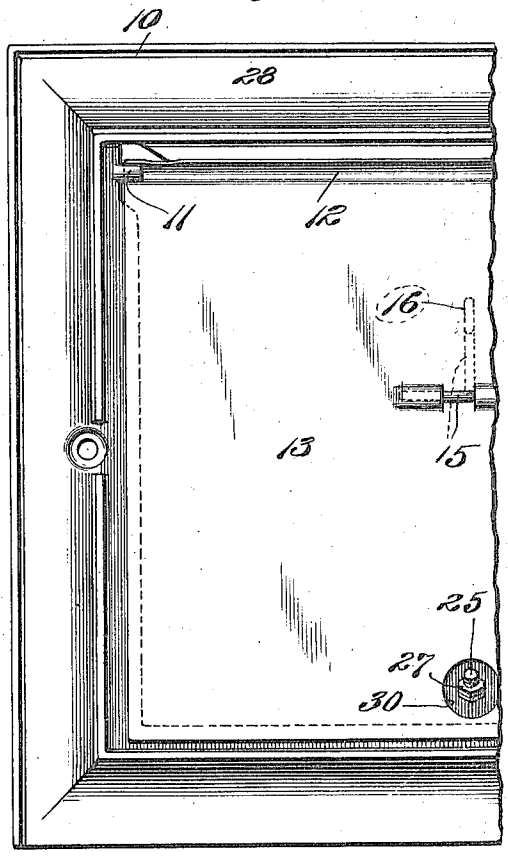


Fig. 6.

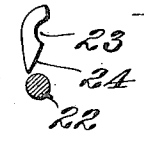


Fig. 7.

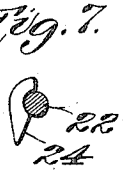


Fig. 8.

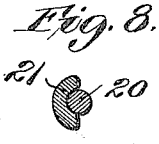
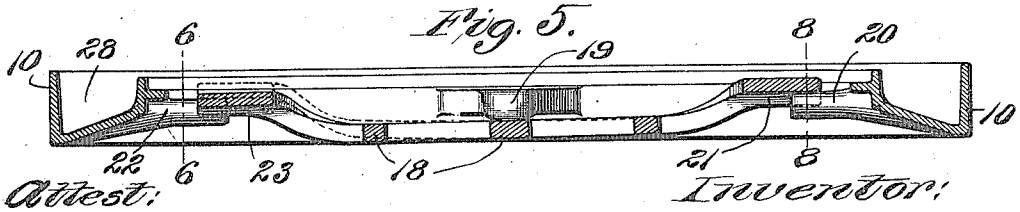


Fig. 5.



Attest:

Wm. F. Cobb.

N. E. Brockman.

Inventor:

Herbert W. Symonds,

by J. H. Hopkins,

Atty.

H. W. SYMONDS.

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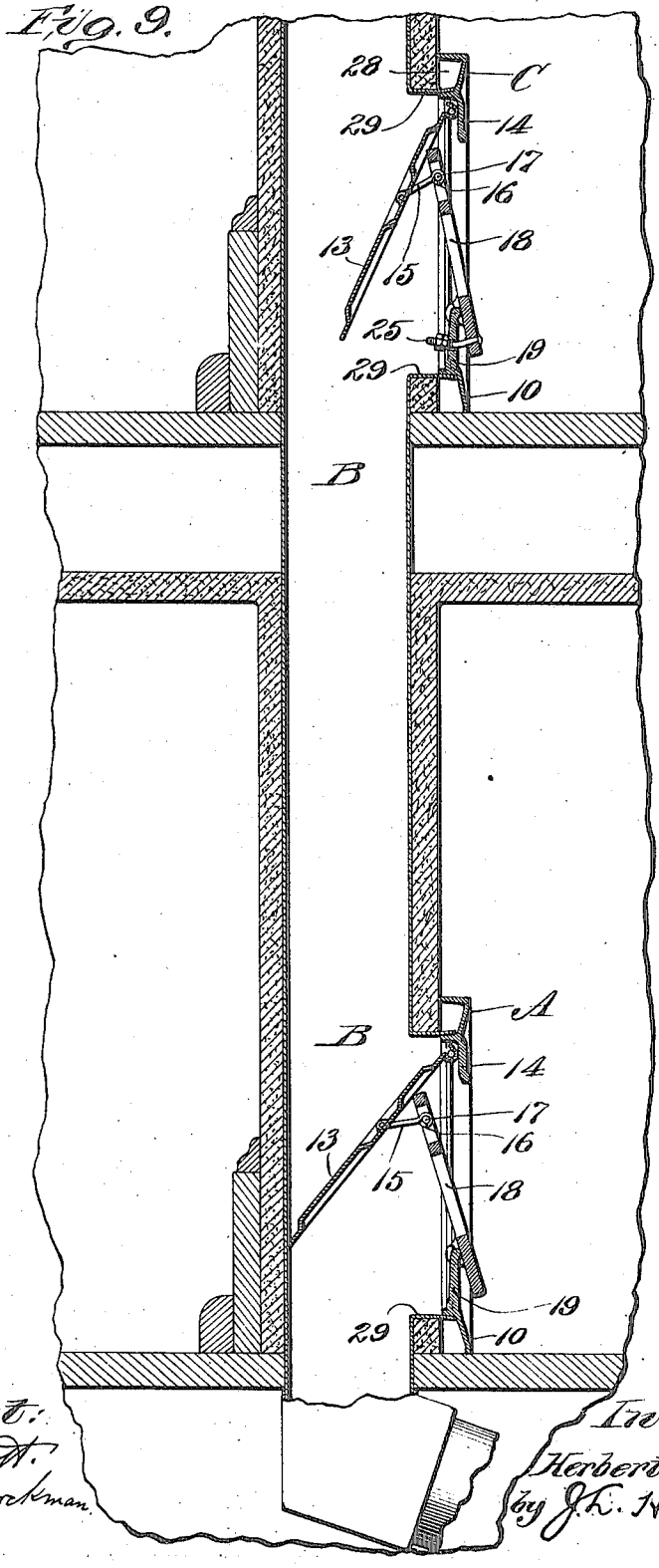
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3 SHEETS—SHEET 3.

Fig. 9.



Attest:
Wm. H. Scott.
N. E. Brockman.

Inventor:
Herbert W. Symonds,
by J. K. Hopkins
Atty.

UNITED STATES PATENT OFFICE.

HERBERT W. SYMONDS, OF ST. LOUIS, MISSOURI.

HOT-AIR REGISTER.

1,233,523. Specification of Letters Patent. Patented July 17, 1917.

Application filed December 12, 1913. Serial No. 806,228.

To all whom it may concern:

Be it known that I, HERBERT W. SYMONDS, a citizen of the United States, and a resident of St. Louis, Missouri, have invented certain new and useful Improvements in Hot-Air Registers, of which the following is a specification.

My invention relates to a hot-air register, of what is known in the art as the "wall" type, and has for its object to provide a register having three principal elements, namely, a frame, a single valve horizontally and detachably pivoted in said frame, and a grille or grating horizontally and detachably pivoted in the frame to actuate the valve; combining therewith means for limiting the movement of the grille and valve, to the end of preventing the complete throttling of the hot air flue by the valve. This latter feature is of value and utility wherever a single hot-air flue is intended to supply heated air to two or more registers, and is intended to prevent the entire diversion of the ascending heated air by either of the registers which are arranged in series, except the last register in the series. Furthermore, the valve-limiting mechanism is so arranged as not only to adjustably limit the movement of the valve, but to prevent the adjustment from being altered or tampered with after the register is seated in place.

In the drawings—

Figure 1 is a front elevation of a register involving my invention, seated in place for use.

Fig. 2 is a transverse horizontal view in section of the same, taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view of the same, and the hot air supply flue.

Fig. 4 is a fragmental rear elevation of a register embodied in my invention.

Fig. 5 is a transverse sectional view taken on the line 2—2 of Fig. 1, and illustrating the frictional contacting points at which the grille is held in place within the frame, and the manner in which the grille is sprung into place, in the course of assembling.

Fig. 6 is a detail view taken on the line 6—6 of Fig. 5, showing the left hand trunnion of the frame, and the depending cam-face of the grille adapted to contact with said trunnion, in the position which it occupies just before it is sprung into place.

Fig. 7 is a like view, on the line 6—6 of Fig. 5, showing the left hand bearing of the grille in contact with and seated in place upon the left hand trunnion of the frame.

Fig. 8 is a transverse sectional view taken on the line 8—8 of Fig. 5; showing the seating of the right-hand bearing of the grille upon the right-hand trunnion of the frame.

Fig. 9 is a vertical sectional view of a fragment of a building, showing the seating of two registers upon a vertical hot-air flue; the lower register being unprovided with means for regulating and limiting the throw or movement of the valve, with the consequence of a complete throttling of the flue by the first register, thus depriving the occupants of the upper right-hand room of heat. The upper register is illustrated as containing the valve whose movement is limited in accordance with my present invention, with the result of preventing total or complete throttling of the flue by its use.

The frame 10 is provided with the valve trunnions 11, located, as shown, and projecting inwardly from the inner vertical edges of the frame near its top, for the reception of the ends of the horizontal channel 12 with which the valve 13 is provided along its upper horizontal edge. The valve 13 is hooked into place as illustrated in Figs. 1, 3, 4, and 9; the depending fret-work 14 with which the frame 10 is provided along its upper and inner horizontal edge serving to exert frictional contact at points along the front and convex surface of the channel 12.

A link-bar 15 is pivotally mounted on the valve 13, its front extremity having the eye 16 which engages with the pintle 17 with which the grille 18 is provided.

The frame 10 at the center of its lower inner edge is provided with the upwardly projecting friction-post 19, which has frictional contact with the inner face of the grille 18 in the manner illustrated in Figs. 1, 2 and 5, its top projecting slightly forward as shown in Fig. 5. The frame is also provided with a right-hand trunnion 20 which engages with the right-hand bearing or channel 21, on the front face of the grille 18. The frame 10 is also provided with a left-hand trunnion 22 to engage the left-hand channel or bearing 23 with which the front face of the grille 18 is provided. Fig. 5 illustrates, by means of dotted lines, how the grille 18 is sprung into place; Fig. 6 illustrates how the cam-face 24 serves to guide the channel 23 to its seated

position, which latter position is shown in Fig. 7.

As I have indicated above, the use of a single valve register, such as I have indicated as A in Fig. 9, enables its user, under ordinary conditions of installation and flue construction, to completely throttle, and divert all of the ascending heated air from the flue B, as illustrated in Fig. 9. To overcome this difficulty, which is productive of trouble as between the tenants of upper and lower floors, whose registers are fed by the same flue, I have provided the grille 18 with a pin 25, whose outer end is fixed near the lower edge of the grille 18, and whose inner end is curved as shown in Fig. 3, passes through an orifice in the post 19, and its extremity is screw threaded and provided with a nut 26 and lock-nut 27, which nuts are adjusted and locked before the register is seated in place, and when so seated, cannot be reached or tampered with by the tenant or user.

The frame 10 is channeled as indicated by the numeral 28 so as to be seated in the flue frame 29 with which the flue B is provided. When so seated, the movement of the valve 13 is limited by the mechanism just described, so that its inward throw will not carry the valve 13 to the back wall of the flue B, the illustration of such register, and the limitation of the movement of its valve being indicated by the upper register, indicated as C, in Fig. 9.

By reason of the construction shown, the valve 13 is readily removable from the frame 10, and its connecting link 15 is readily detachable from the pintle 17. So, also, the grille 18 is readily removable from the frame 10, the nut 26 and lock-nut 27 being first removed from the pin 25.

As shown in Figs. 3 and 4, the valve 13 is provided with a perforation 30, to accommodate the rearwardly projecting end of the pin 25 and the nuts 26 and 27.

Having thus described my invention, what I claim as new, and desire to have secured to me by the grant of Letters Patent, is—

1. In a hot-air register, a frame provided near the lower ends of its inner vertical edges with inwardly projected trunnions and at the center of its lower horizontal inner edge with an upwardly projecting friction post, a grille removably and pivotally mounted in said frame by frictional contact with said trunnions and said friction post, and a single valve horizontally pivoted in said frame and actuated by said grille.

2. In a hot-air register, a frame, a single valve horizontally pivoted in said frame, a grille horizontally pivoted in said frame to actuate said valve, and means for limiting the movement of said valve having adjustable mechanism so located as to be inaccessible when the register is seated in place.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

HERBERT W. SYMONDS.

Witnesses:
J. L. HOPKINS,
N. E. BROCKMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."