

(No Model.)

J. C. RANDALL.
AIR CURRENT REGULATOR.

No. 557,428.

Patented Mar. 31, 1896.

Fig. 1.

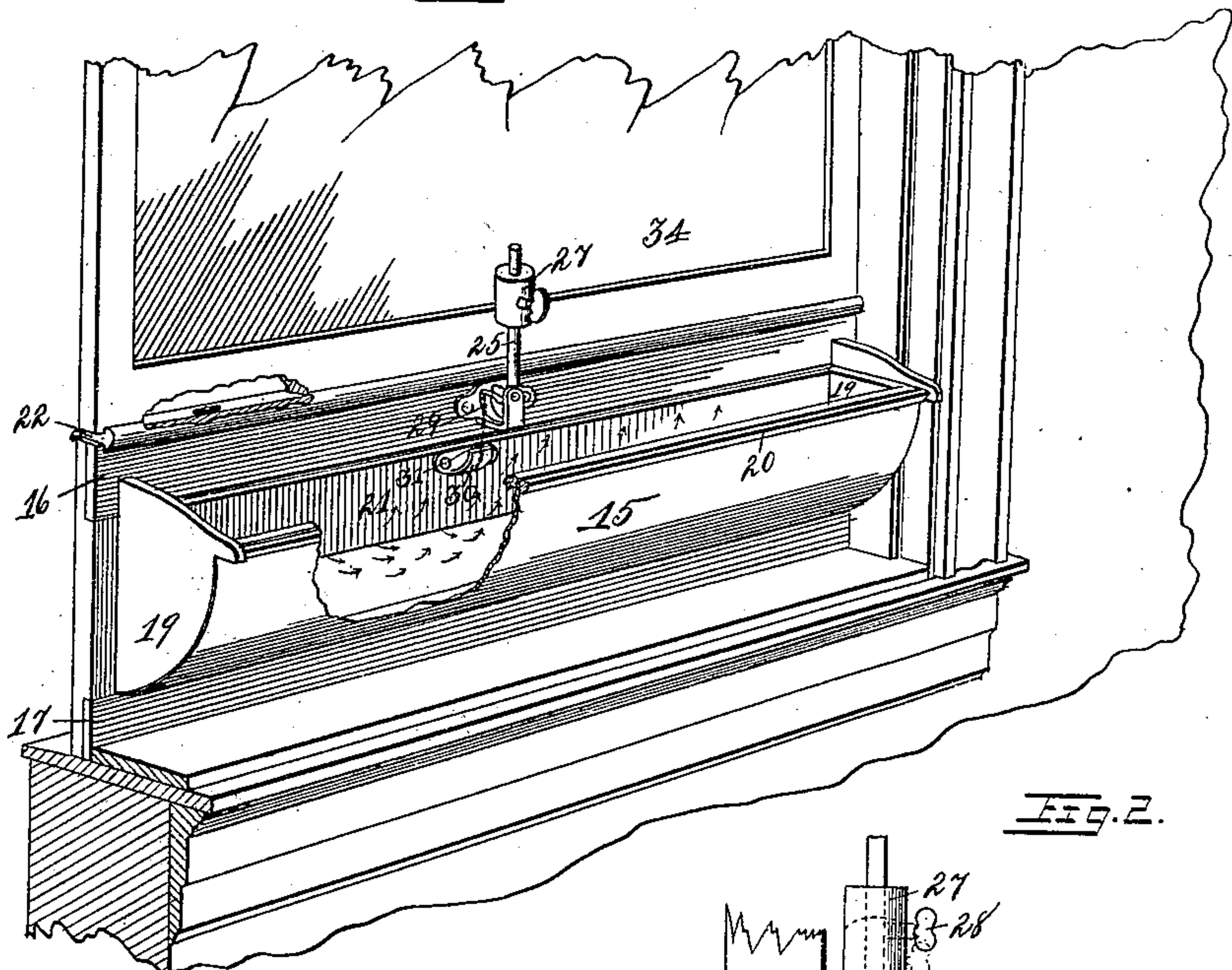


Fig. 2.

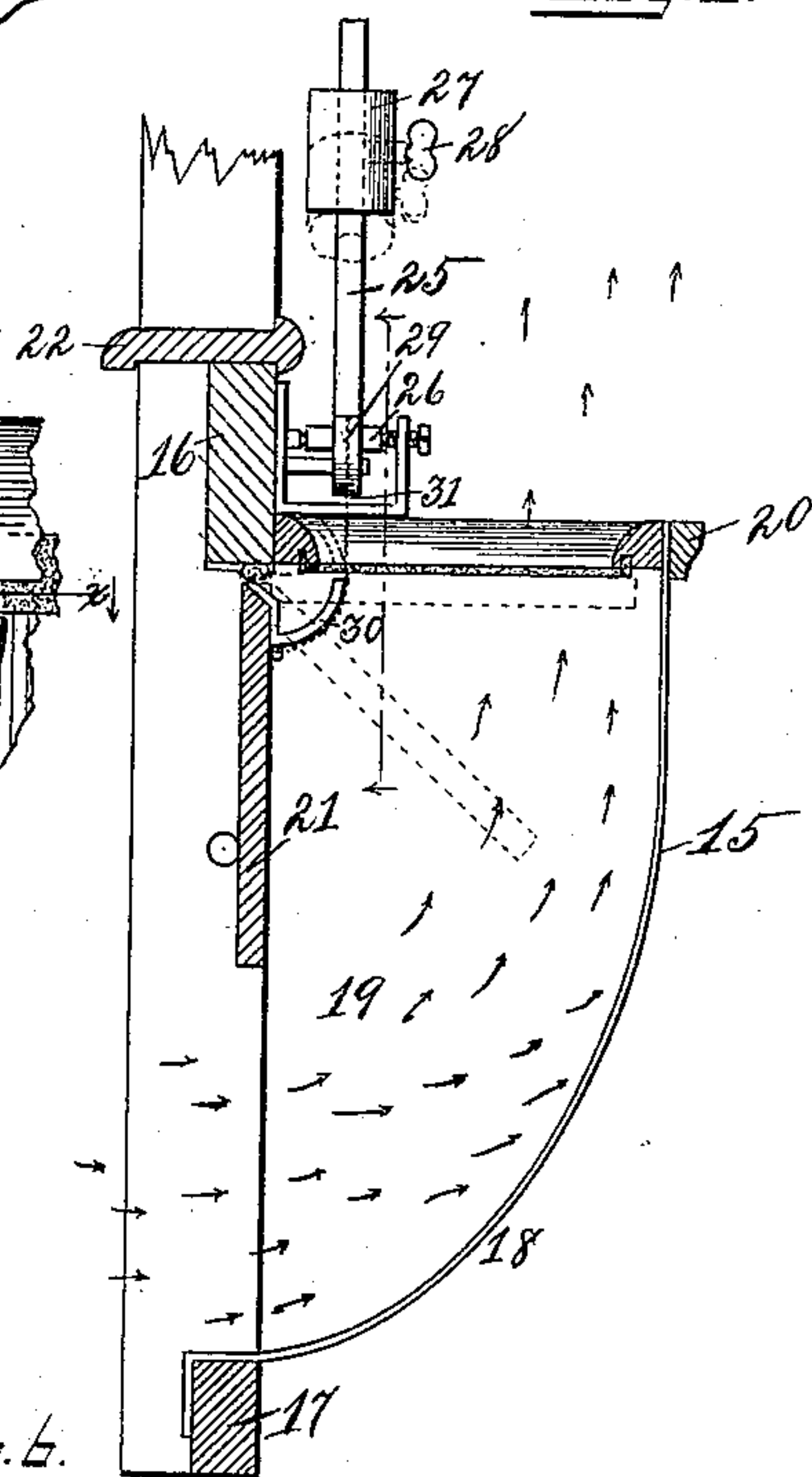


Fig. 3.

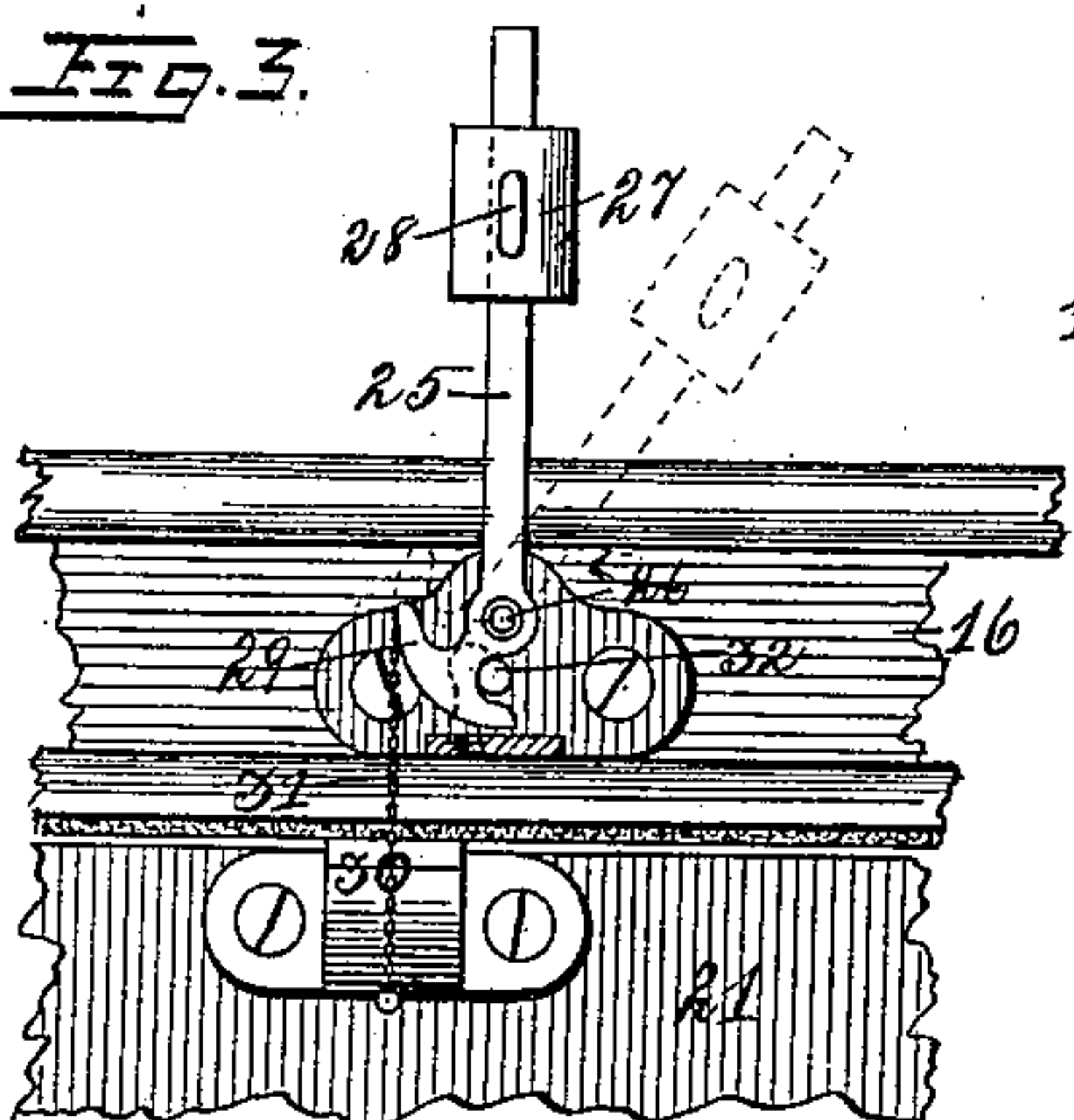


Fig. 4.

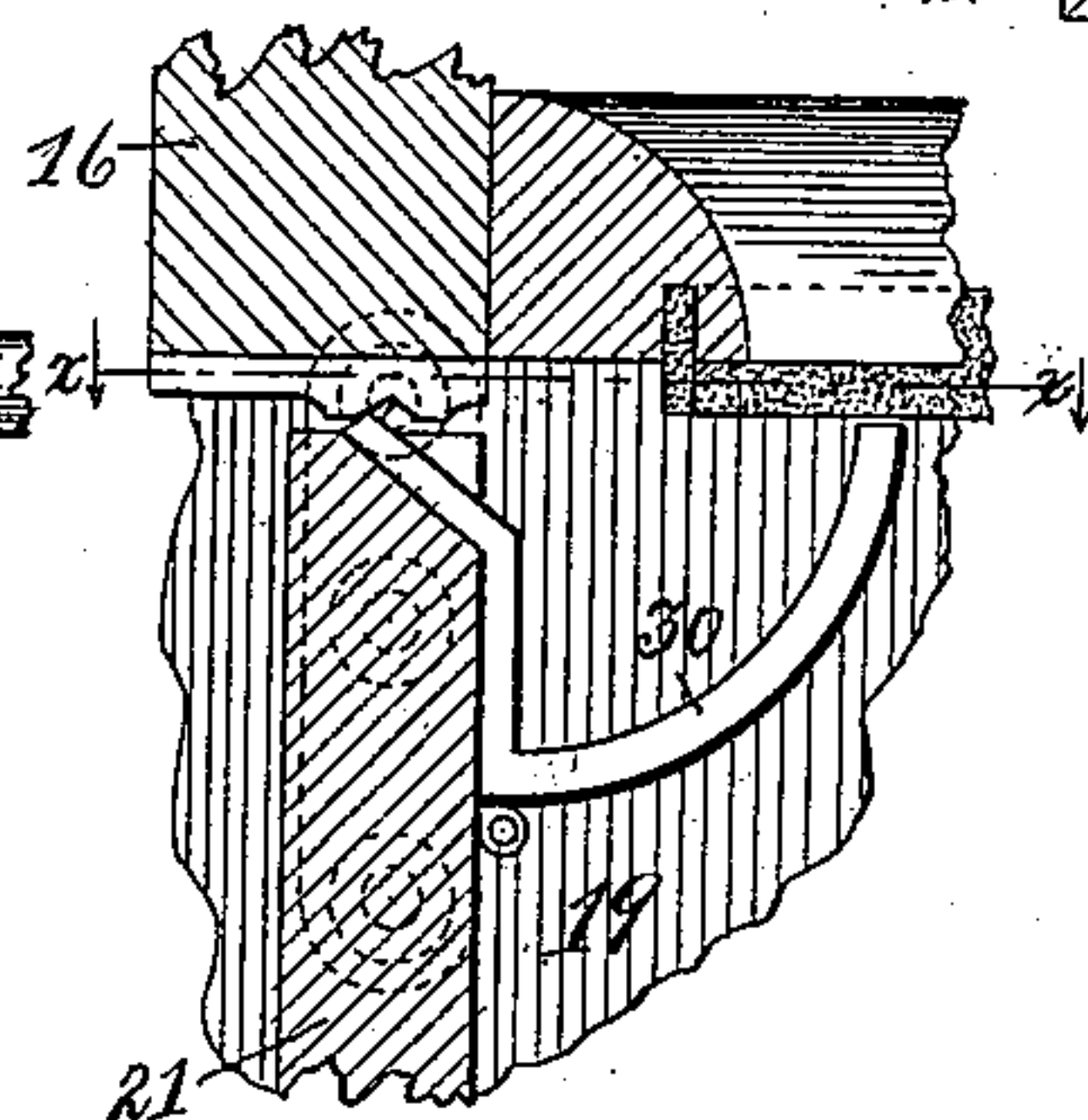


Fig. 5.

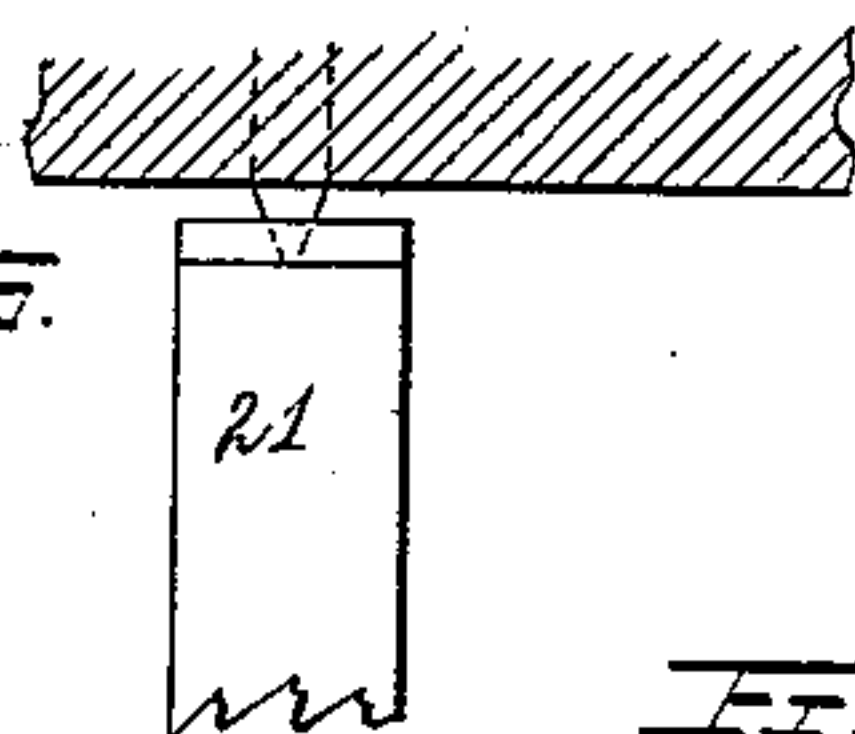
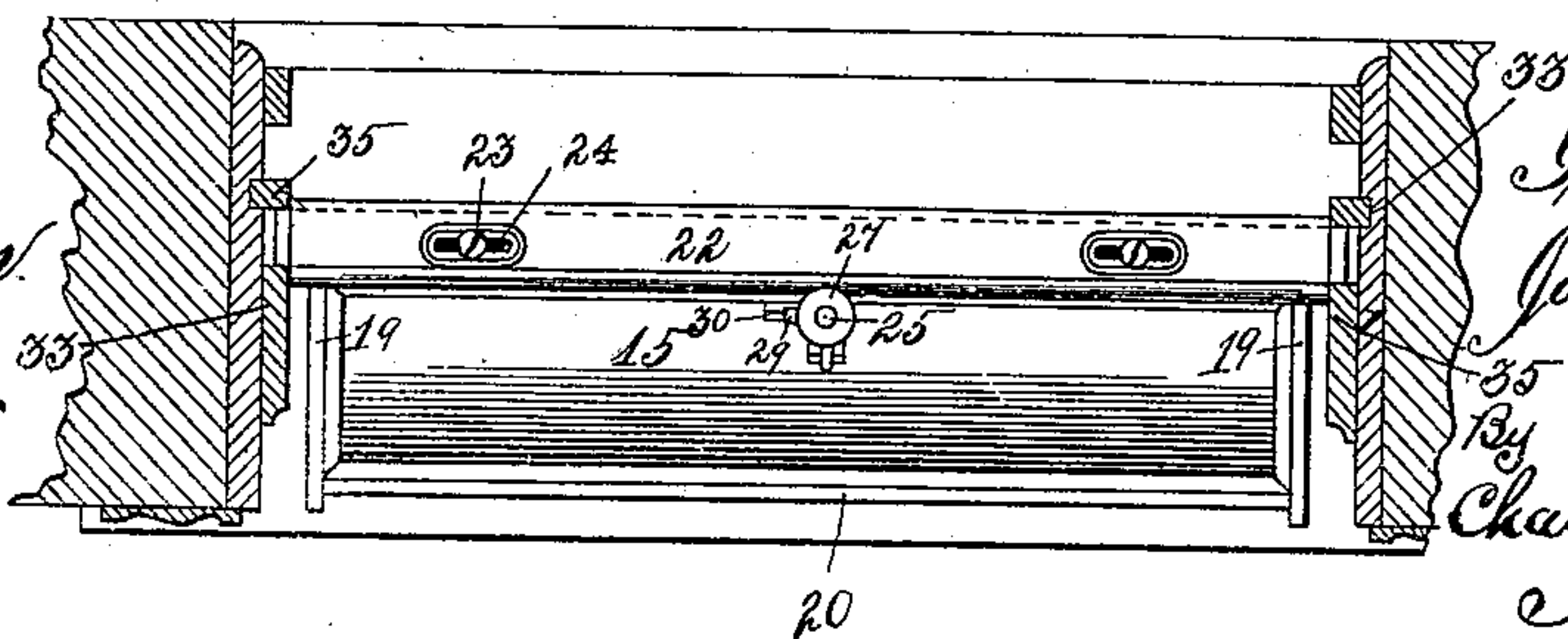


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN C. RANDALL, OF SOUTH HAVEN, MICHIGAN.

AIR-CURRENT REGULATOR.

SPECIFICATION forming part of Letters Patent No. 557,428, dated March 31, 1896.

Application filed August 15, 1895. Serial No. 559,370. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. RANDALL, a citizen of the United States, residing at South Haven, in the county of Van Buren and State of Michigan, have invented certain new and useful Improvements in Air-Current Regulators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a certain improved form of automatically operated and operating mechanism for air-current regulation in order to thoroughly ventilate a compartment without admitting violent gusts or blasts of exterior air.

In the accomplishment of this end my invention consists in a device which is adapted to be located in position between the casings of a window and in the provision of mechanism whereby the quantity of exterior air admitted to the interior is automatically regulated and determined by the apparatus itself whereby such a quantity, and that alone, of external air is admitted to the interior as is desired to provide therein suitable ventilation and the desired temperature, the apparatus being of such a character as that adjustments may be effected whereby a greater or less quantity of external air may be admitted as desired.

Reference may now be had to the accompanying drawings for further features of my invention and of objects to be attained, in which drawings—

Figure 1 is a perspective view of the lower portion of a window, showing my improved apparatus adjusted in position for use. Fig. 2 is a transverse sectional view through the apparatus. Fig. 3 is an enlarged detail view showing the weighted regulator-lever and connections between it and the regulator-valve. Fig. 4 is an enlarged detail sectional view showing the hinge connection between the regulator-valve and the cross-bar. Fig. 5 is an enlarged detail view on the line $x x$ of Fig. 4, still further illustrating this hinge connection. Fig. 6 is a cross-sectional view through the casings of a window and a plan view of the apparatus adjusted in position.

My improved apparatus consists in a box-deflector 15, of quadrant shape in cross-section, having secured at its upper and lower

portions the supporting cross-bars 16 and 17, the circular body 18 of the box-deflector being secured to the end pieces 19, the cross-bar 17 and the outer cross-bar 20. A regulator-valve 21 is hinged, in the manner to be described, to the cross-bar 16 and extends longitudinally from end to end of the box-deflector. Held upon the upper edge of the cross-bar 16 is an adjusting-bar 22, connected with the former by means of the screws 23 passing through slots 24, Fig. 6, and entering said cross-bar 16.

I will now describe the apparatus or mechanism for determining or regulating the amplitude of oscillations of the hinged valve 21 under the influence of air-currents of varied strength. I provide a regulator-lever 25 pivoted at 26 and having its upper end free to oscillate in the arc of a circle. A weight 27 is adjustably held upon the regulator-lever 25 above its pivot by means of a set-screw 28. The lower portion of the regulator-lever 25 is formed into a quadrantal arm 29, whose axis is the fulcrum of the regulator-lever 25. Secured to the valve 21 is a quadrantal arm 30, whose axis is in line with the hinge of the valve 21. Secured to the upper end of the arm 29 is a flexible connector 31, the lower end of which is secured to the valve after having passed about the quadrantal arm 30. A stop 32, Fig. 3, limits the oscillation of the regulator-lever 25 to one direction. The hinge connection between the valve 21 and its supporting-bar is shown in Fig. 5.

In order to adjust the apparatus between the casings 33 of a window, the same is generally positioned below the lower window-sash 34 and the adjusting-bar 22 located in position abutting against the window-stops 35, Fig. 6, the screws 23 being loosened. When the cross-bar 16 has been properly adjusted in position between the stops or bearing against them and the screws 23 secured, the apparatus is adjusted in position, the lower sash being brought down upon the adjusting-bar 22. The relationship between the weight 28 of the regulator-lever 25 and the valve 21 is such that when the latter is in a vertical position, as shown by the full lines in Fig. 2, the regulator-lever 25 and its weight 28 will be poised over its center of gravity, but when the force of the air-currents is such that it becomes desirable to cut

off the same this equilibrium between the valve and weight is overcome and the former assumes one of the positions shown by the dotted lines in Fig. 2, in one instance cutting 5 off a portion of the air and in the other, which is the horizontal position of the valve, cutting off the air entirely, the degree of movement of the valve 21 being counterbalanced by the weight 27 and the regulator-arm 25, 10 which oscillates as shown by the dotted lines in Fig. 3. As the weight is poised over its center of gravity and the regulator-arm 25 in a vertical position when the valve 21 is in its vertical position and as the regulator-arm is 15 horizontal when the valve 21 is horizontal and in its closed position, each describing the arc of a circle, it is evident that as the valve is balanced by the weight when horizontal it will also balance said valve at any 20 point between the perpendicular and horizontal.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

25 1. In an air-current regulator the combination with the deflector of a hinged air-controlling admittance-valve, a regulator-lever pivoted independently of said valve, a counterbalance-weight carried thereby and intermediate connections between the valve and 30 the regulator-lever.

2. In an air-current regulator the combination with the deflector of a hinged air-controlling admittance-valve, a regulator-lever 35 pivoted independently of said valve, a counterbalance-weight carried thereby and a flexible connector between the valve and the regulator-lever.

40 3. In an air-current regulator the combination with a suitable deflector of a valve piv-

oted therein exposed directly to the pressure of the external air-currents and conditioned to move upon a definite pressure into partially or completely closed positions, a counterbalance device operatively connected with 45 said valve consisting of a regulator-lever pivotally mounted, independently of the valve and a weight carried by said lever poised over its center of gravity when the valve is in its extreme open position. 50

4. In an air-current regulator the combination with a suitable deflector of a valve pivoted therein exposed directly to the pressure of the external air-current and conditioned to move upon a definite pressure into partially or completely closed positions, a counterbalance device consisting of a regulator-lever pivotally mounted independently of 55 the valve which lever is adapted to oscillate in a plane at right angles to the plane of oscillation of the valve and a weight carried by said lever the latter assuming a vertical position when the valve is open and a horizontal position when the valve is closed. 60

5. In an air-current regulator the combination with the deflector of a hinged air-controlling admittance-valve, a regulator-lever pivotally mounted independent of said valve, a counterbalance-weight and quadrantal arm 65 carried by said lever and a quadrantal arm carried by the valve together with a flexible connector between the regulator-lever and the valve. 70

In testimony whereof I affix my signature in presence of two witnesses.

JOHN C. RANDALL.

Witnesses:

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