(No Model.) 2 Sheets—Sheet 1.

J. BULLINGER.

WINDOW.

No. 456,136. Patented July 21, 1891.

FIG. 2.

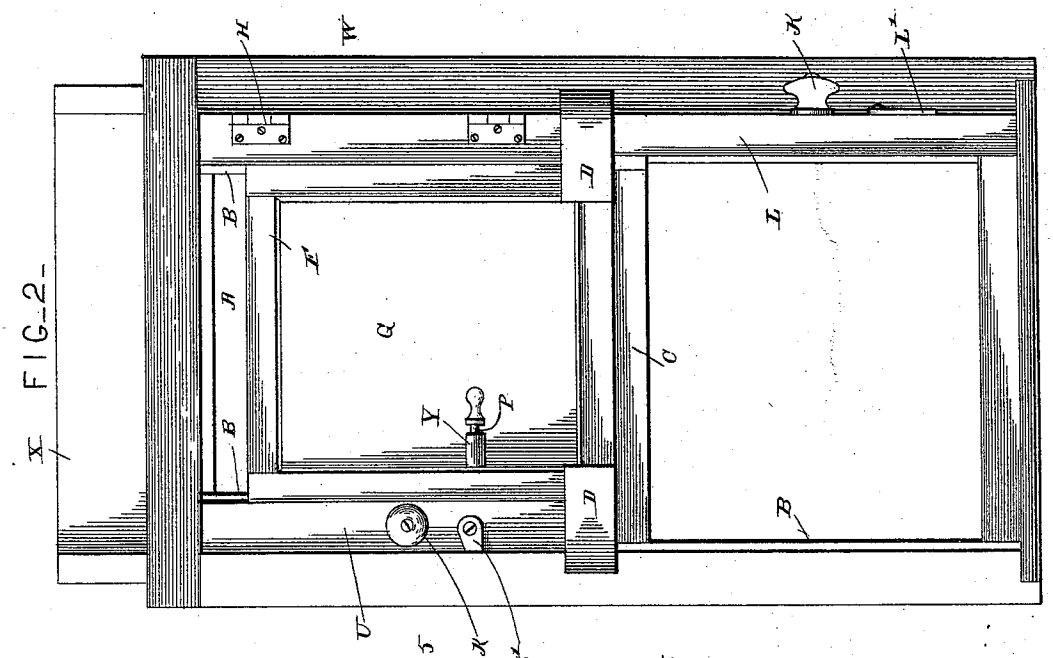
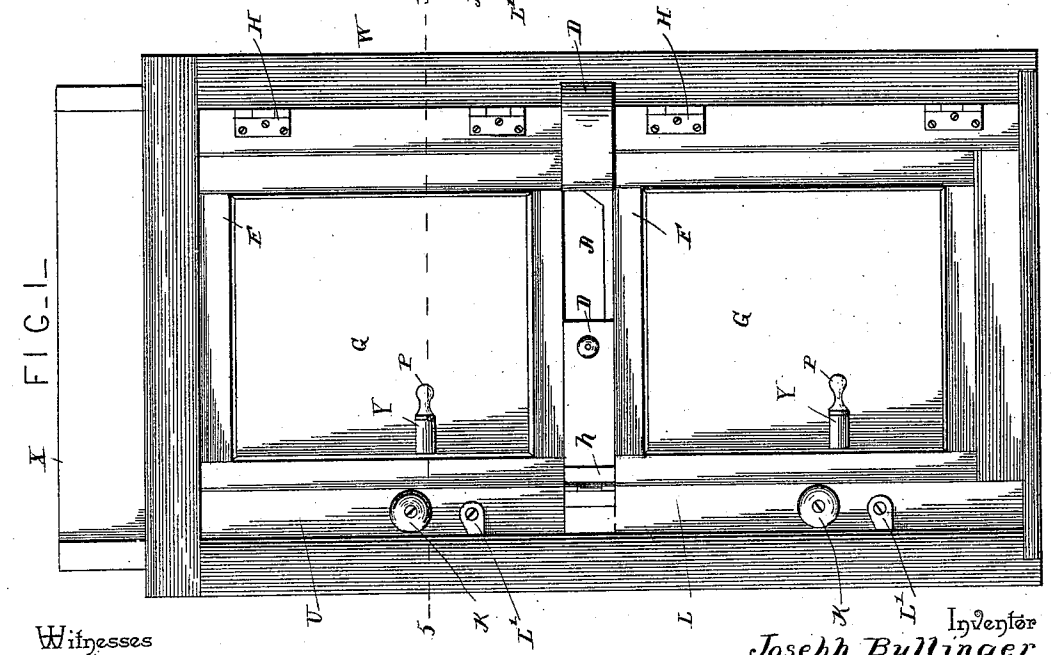


FIG. 1.



Witnesses

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Inventor

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(No Model.) 2 Sheets—Sheet 2.

J. BULLINGER.

WINDOW.

No. 456,136. Patented July 21, 1891.

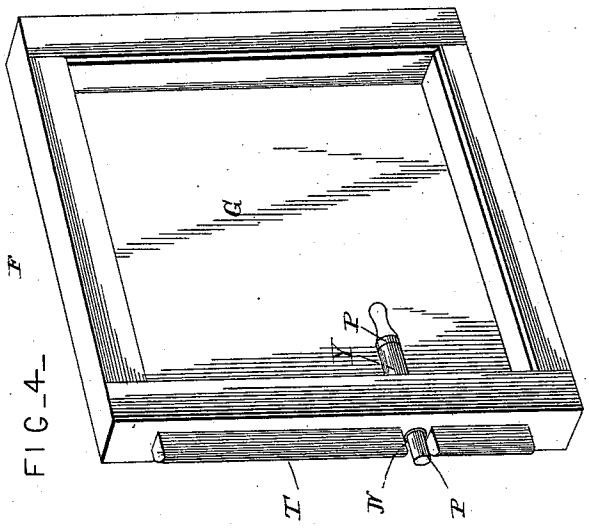


FIG. 4.

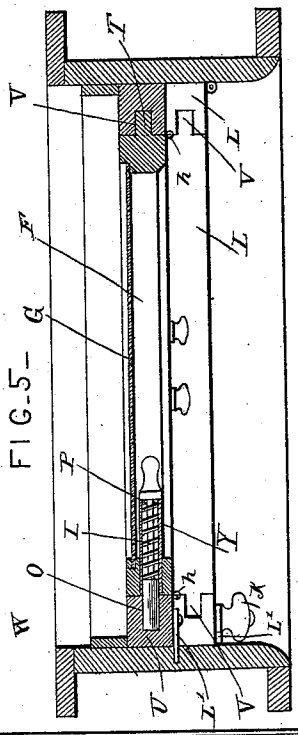


FIG. 5.

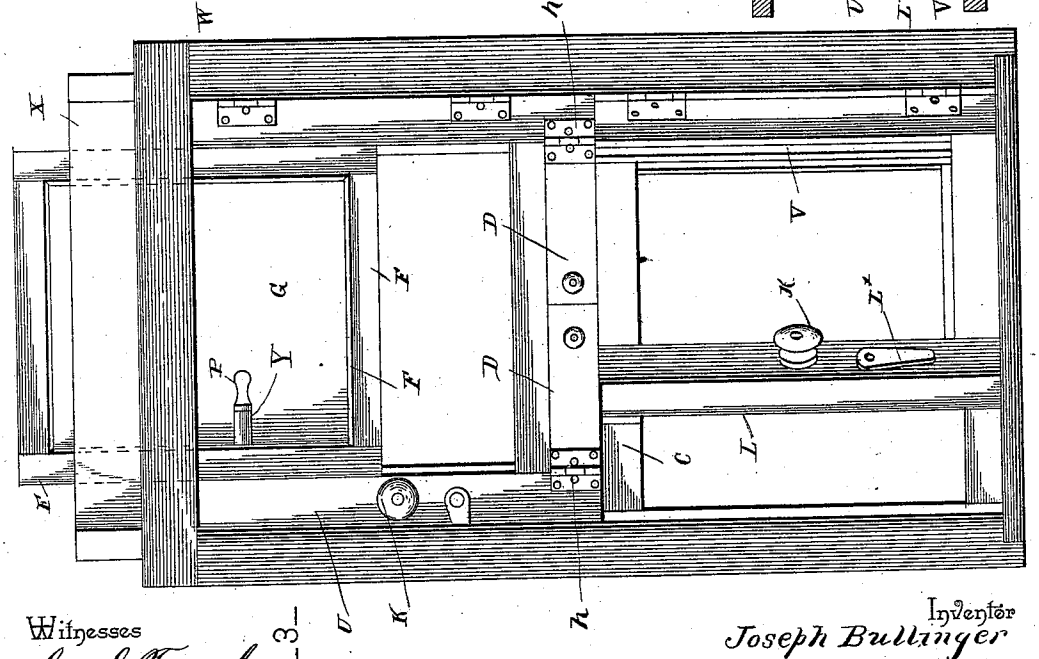


FIG. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH BULLINGER, OF KANSAS, OHIO, ASSIGNOR OF THREE-FOURTHS TO H. WILLARD LEASE, JOHN C. BULLINGER, AND FRANK X. BULLINGER, OF SAME PLACE.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 456,136, dated July 21, 1891.

Application filed February 13, 1891. Serial No. 381,298. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BULLINGER, a citizen of the United States, residing at Kansas, in the county of Seneca and State of Ohio, have invented a new and useful Window, of which the following is a specification.

This invention relates to window-frames; and the object of the same is to provide a frame having sashes hinged therein, but from which the glass-holding frames are capable of being totally removed for cleaning and other purposes.

The invention consists of the specific details of construction hereinafter more fully described and claimed, and as illustrated on the accompanying two sheets of drawings, wherein—

Figure 1 is an inside elevation of this improved window closed and with one of the ventilating-doors open. Fig. 2 is a similar view with the lower sash open and the upper sash closed and its glass-frame slightly lowered to provide ventilation at the top. Fig. 3 is a similar elevation showing the upper glass-frame in the act of being removed through the window-frame and the lower sash partly open and with its glass-frame removed. Fig. 4 is a perspective detail of one glass-frame removed. Fig. 5 is a horizontal section on the line 5 5 of Fig. 1, except that the lower glass-frame is removed.

Referring to the said drawings, the letter W designates an ordinary window-frame, with the exception that it has no vertical beads between which the sashes move, and that it also has an open extension X at its upper end. Within this frame are located the upper and lower sashes U and L, which are hinged to one side of the frame out of vertical alignment, as seen in Fig. 5, and normally close against beads B as well as against a cross-strip C, preferably provided at about the center of the window-frame. These sashes have operating-knobs K and latches L′ of any approved construction (preferably that shown) at their edges opposite the hinges H. It will thus be seen that the sashes may be closed and latched, or one or both may be opened, as shown.

In the inner edges of the side bars of the sashes are vertical grooves V, in which slide tongues T, formed upon or secured to the outer edges of the side bars of glass-holding frames F, the glass G being secured in these frames in any well-known manner. In one of the side bars of each frame is secured a cylinder Y, containing a coiled spring I, and through this frame passes a plunger-rod P, whose tip extends through a notch N, cut in the tongue T at that side of the frame, and is normally projected into a hole O in the bottom of the groove V. By this means the frame F is held within its sash against vertical displacement, but may be removed by withdrawing the plunger P, as will be understood. For this purpose the upper end of the lower sash L is open, and the frame will move by the face of the upper sash while the frame from the upper sash will move through the extension X of the window-frame. The upper and lower cross-bars of the upper sash U are mere strips connecting the outer faces of the side bars, and these strips are cut away, as at A, on the inner edges. The normal position of the upper frame F in its sash is flush with the upper ends of the side bars thereof, as seen in Fig. 1, and connected by hinges *h* to the lower ends of said side bars are wings or doors D, adapted to be folded together or closed to cover the cut-away portion A beneath this frame. However, when it is desired to have a slight ventilation at this part of the window, one or both of the doors D may be opened, as shown in Fig. 1. If it be desired to have the ventilation at the top of the window, both doors D are opened, the upper plunger P withdrawn from its hole O, and the upper frame F moved downwardly in the grooves V, so that its lower cross-bar covers the lower cut-away portion A and its upper cross-bar exposes the upper cut-away portion. When in this position the upper sash U cannot, of course, be turned on its hinges H, but such movement of the lower sash is not affected by whatever is done to the upper.

Although I have not shown it, it will be understood that the ventilating-doors may be applied to the lower sash, both sashes, or neither, and various other changes may be

made in the construction of this improved window without departing from the spirit of my invention.

What is claimed as new is—

1. In a window, the combination, with the window-frame having beads on its inner faces and a cross-strip at about the center of its height, of upper and lower sashes hinged at one side to the frame, the lower sash slightly out of the plane of the upper, catches on the free edges of said sashes, the side bars of the lower sash having vertical grooves open at their upper ends, a frame sliding in said grooves, and glass within said frame, substantially as described.

2. In a window, the combination, with the window-frame having an open extension through its upper end and beads on the inner faces of said frame, of upper and lower sashes hinged at one side to the frame, the upper below said extension and the lower slightly out of the plane of the upper, the side bars of said sashes having vertical grooves open at their upper ends, catches on the free edges of said sashes, frames sliding in said grooves, and glasses within said frames, substantially as described.

3. In a window, the combination, with a sash in the window-frame, the side bars of said sash having vertical grooves open at their upper ends and one of said grooves having a hole in its bottom, of a frame having tongues on the outer edges of its side bars normally engaging said grooves, one of said tongues having a notch in its body, a spring-actuated plunger extending through the side bar of the frame, through said notch, and normally into said hole and glass within said frame, substantially as shown and described.

4. In a window, the combination, with the window-frame having an open extension through its upper end and beads on the inner faces of said frame, of a sash hinged at one side to the frame, a catch on the free edge of said sash, a vertically-moving frame within said sash, adapted to pass through said extension when the sash is closed, glass within said frame, and means for holding it in position in the sash, substantially as shown and described.

5. In a window, the combination, with a sash having grooved side bars connected by strips which are cut away on their inner edges, of a frame having tongues sliding in said grooves, the vertical height of the frame being less than that of the sash, means for holding the frame with one end flush with that of the sash, glass in said frame, and doors hinged to the side bars and normally closing the cut-away portion of the strip at the other end of the sash, substantially as described.

6. In a window, the combination, with the window-frame and a sash hinged therein and having vertically-grooved side bars, which grooves are open at their upper ends, said side bars being connected by strips provided with openings, of a frame vertically shorter than the height of said sash, the side bars of said frame having tongues engaging said grooves and the whole being vertically removable from the sash, means for holding the frame in the sash with their upper ends flush, glass in the frame, and doors connected to the side bars and normally closing the opening at the bottom of said frame, substantially as and for the purpose hereinbefore described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOSEPH BULLINGER.

Witnesses:
H. WILLARD LEASE,
AMON FREESE.