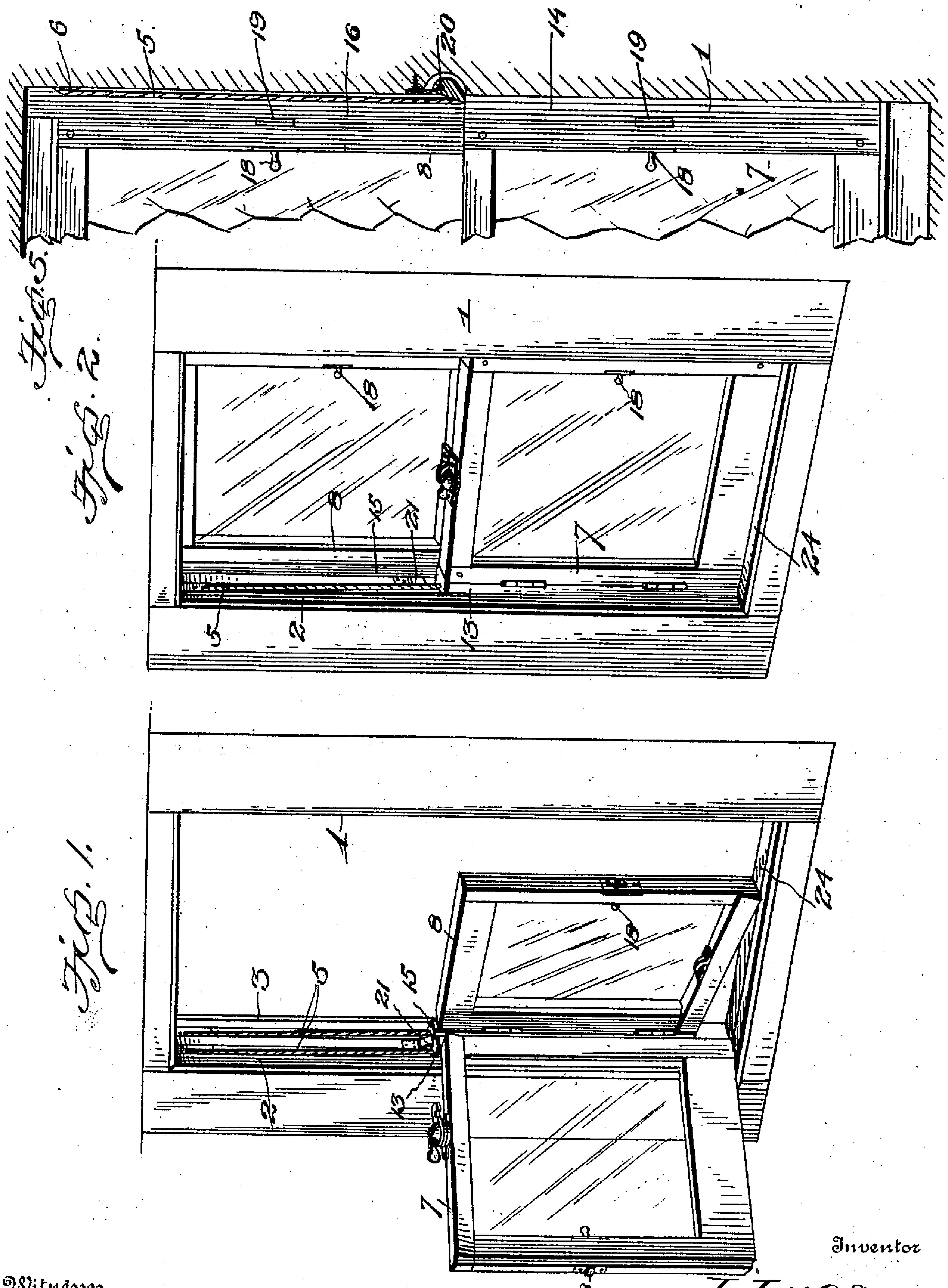
No. 692,159. Patented Jan. 28, 1902.

J. LYES.

WINDOW.

(Application filed May 6, 1901.)

(No Model.) 2 Sheets—Sheet 1.



Witnesses

By

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Fig. 3.

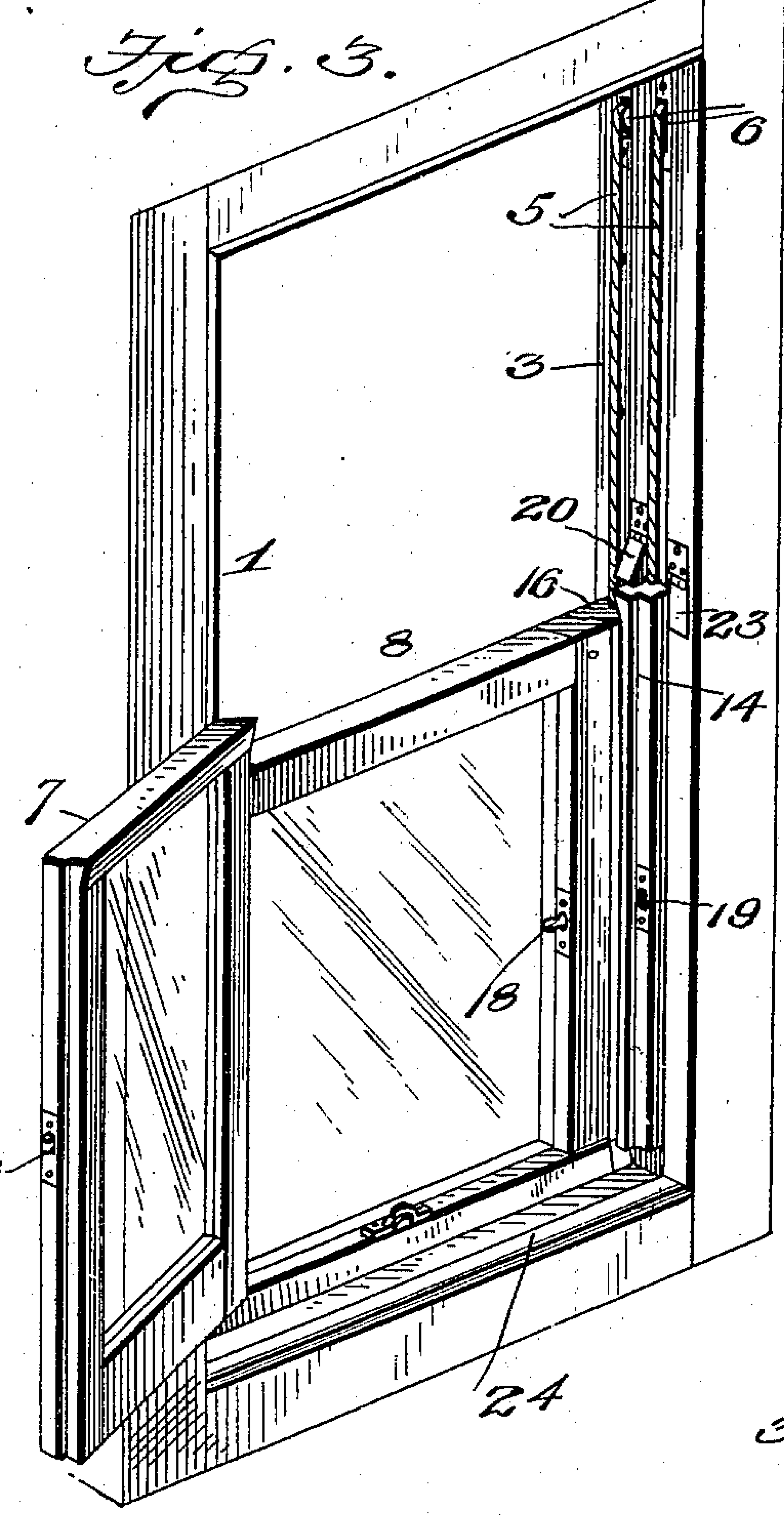


Fig. 6.

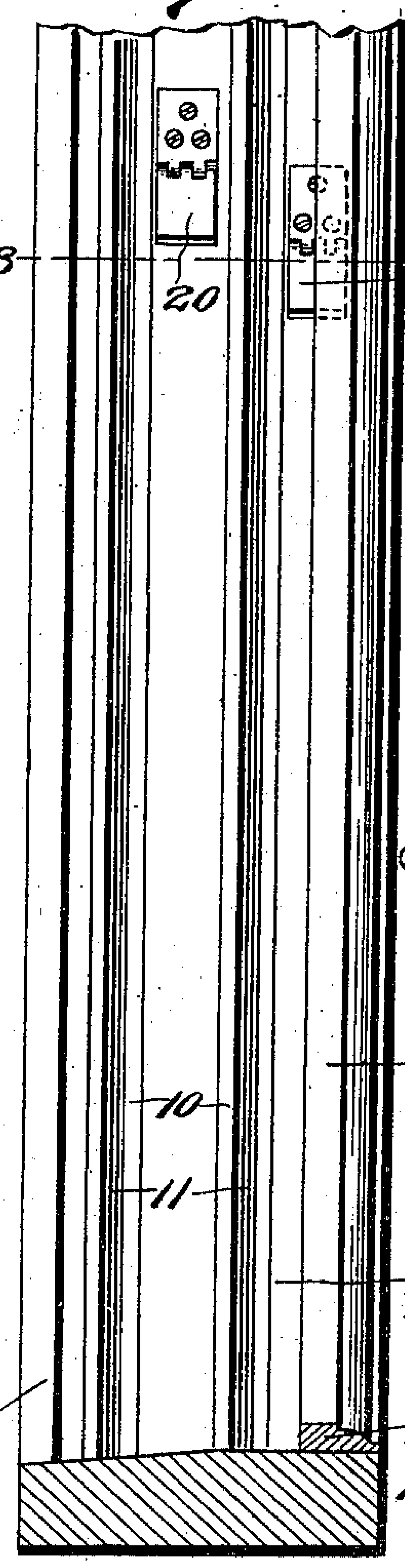


Fig. 7.

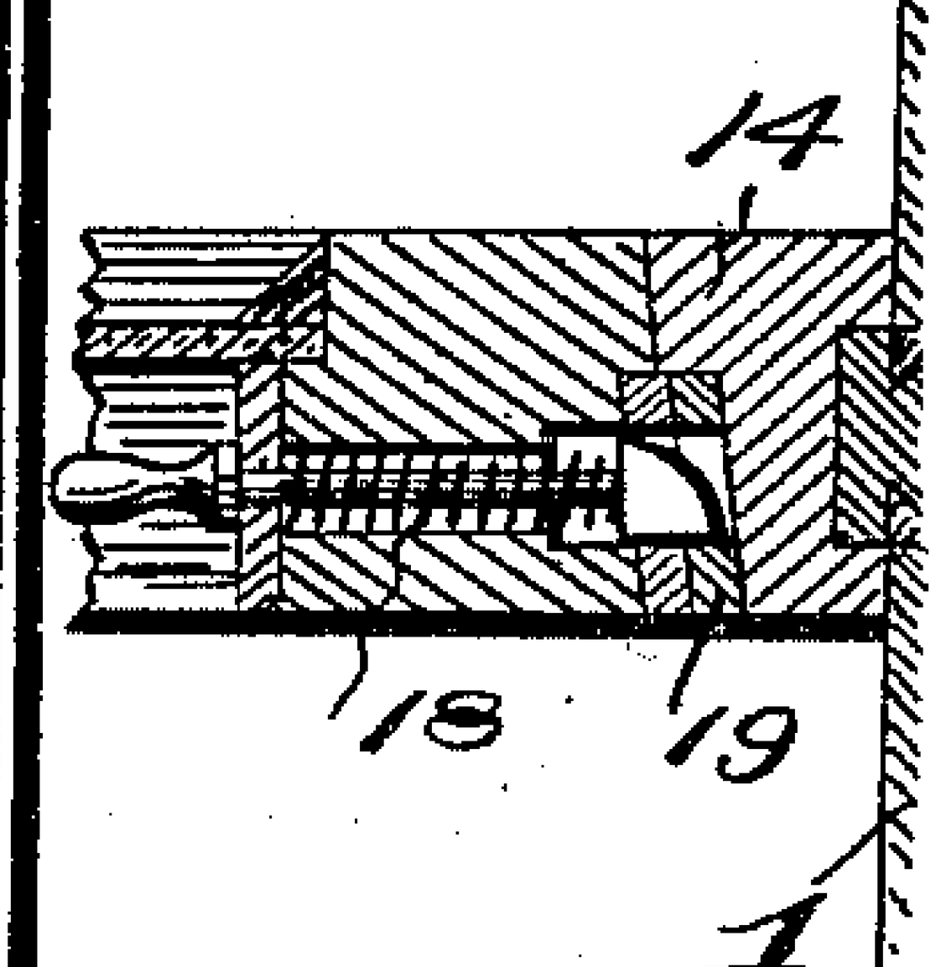


Fig. 8.

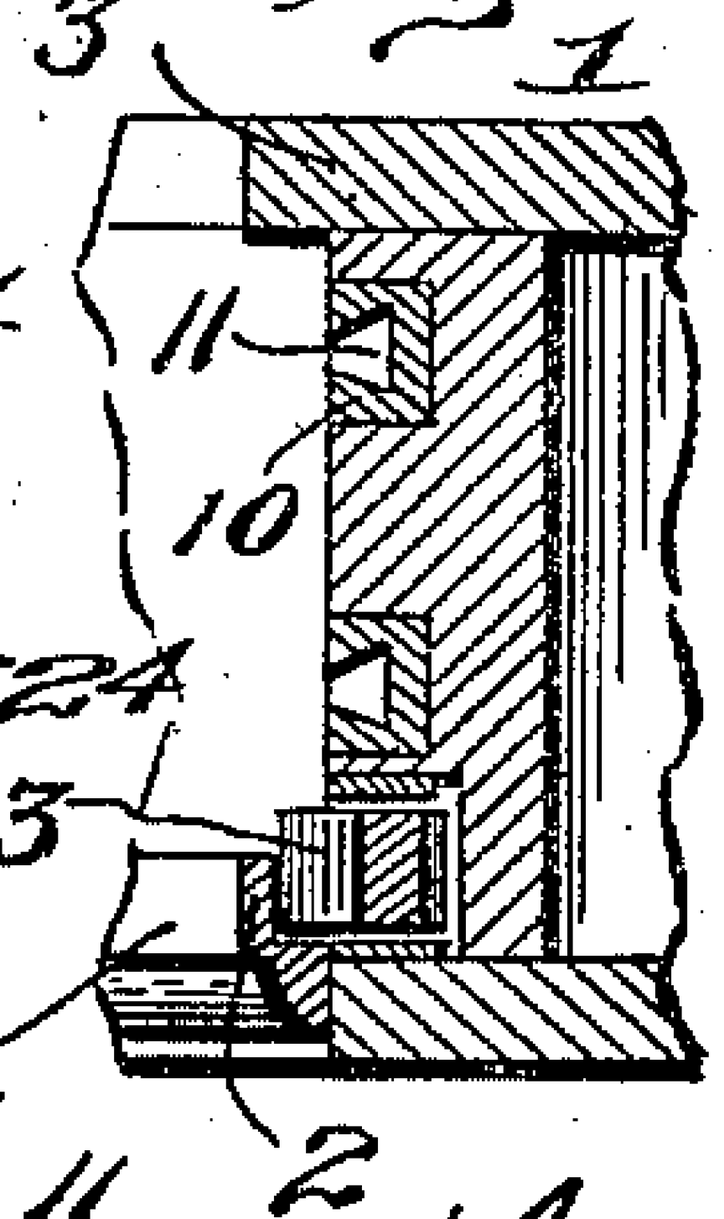
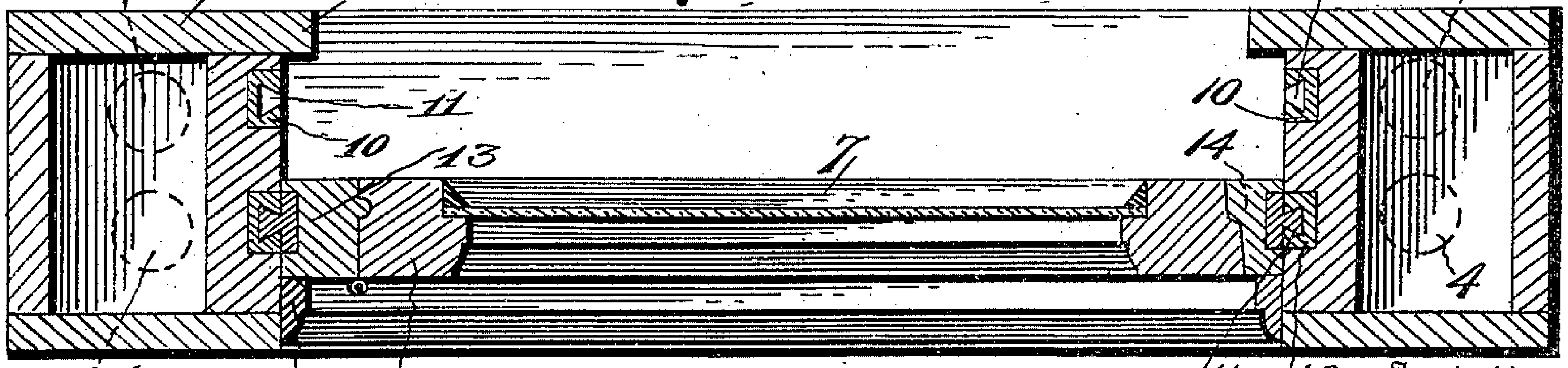


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN LYES, OF BUFFALO, NEW YORK.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 692,159, dated January 28, 1902.

Application filed May 6, 1901. Serial No. 58,928. (No model.)

To all whom it may concern:

Be it known that I, JOHN LYES, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Windows; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to windows.

The object of the invention is to provide an improved window whereby the sash can be swung open inwardly as well as raised and lowered vertically, so that the outside of the sash or glass can be cleaned and repaired without the necessity of going on the outside of the window-frame to do so, thereby obviating the danger of falling from high windows.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, which will be hereinafter more fully described, and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a perspective view showing both sashes in their lowered position and swung inwardly into the room. Fig. 2 is a similar view with both sashes closed. Fig. 3 is a perspective view, both sashes being lowered and one swung inwardly. Fig. 4 is a horizontal sectional view through one of the window-sashes and the window-casing. Fig. 5 is a longitudinal sectional view through one of the sides of the window-frame, showing the pivoted stop. Fig. 6 is a fragmentary view through the right-hand side of the window-frame, showing two of the stops, one arranged to one side of the other and slightly above the other. Fig. 7 is a cross-sectional view through one of the side pieces of the sash and its spring-actuated bolt. Fig. 8 is a sectional view taken on the line 8 8 of Fig. 6.

Referring to the drawings, 1 denotes the window-frame; 2 and 3, the inner and outer beads, respectively; 4, the sash-weights; 5, the sash-cords, and 6 the cord-pulleys, journaled in the upper ends of the frame.

7 denotes the inner sash, and 8 denotes the outer sash. The inner faces of the window-frame are provided with vertically-disposed parallel guide track-bars 10, which are provided with dovetail grooves 11.

13 and 14 denote the inner set of slide-bars, which are provided on their outer faces with dovetail ribs to fit the dovetail grooves of the track-bars to permit of the vertical movement of said bars, and 15 and 16 denote the outer set of slide-bars, provided with dovetail ribs to fit the dovetail grooves in the outer set of track-bars. The inner and outer sashes are hinged to the slide-bars 13 and 15 to swing inwardly and carry on their opposite sides spring-actuated bolts 18, which are adapted to engage keepers 19, secured to the slide-bars 14 and 16, and lock the sashes to said bars, so as to permit of their vertical movement without swinging inwardly. The sash-cords are attached to the two sets of side bars in the usual manner.

When the sashes are lowered to the position shown in Fig. 1, by retracting the spring-actuated bolts 18 from their keepers 19 and drawing inwardly both sashes will be swung into the room for the purpose of washing the panes of glass or for repairing. When the sashes are lowered to the position shown in Fig. 1 and swung inwardly, the sashes 7 and 8 counterbalance the weights 4, attached to the bars 13 and 15, whereby said sashes and bars are prevented from moving upwardly; but there is a tendency for the bars 14 and 16 to be drawn upwardly by means of the sash-weights, and to hold the parts in proper position I provide an automatic gravity-projected stop 20, pivoted to the face of the casing within the path of movement of the bars 14 and 16 and which when the bars 14 and 16 are slid down below the stop springs outwardly and prevents the bars from being elevated by the sash-weights. A similar gravity-projected stop 21 may likewise be secured to the outer face of the window-frame to engage the sliding bars 13 and 15; but this is not absolutely necessary, as the weight of the sashes will ordinarily prevent said bars 13 and 15 and sashes from being raised by the weights 4. It will therefore be seen that when the sashes are swung inward into engagement with the bars 14 and 16 the bolts will always aline with the keepers carried by said bars, so that they are automatically engaged and lock the sash to said bars. When

the upper sash is in its uppermost position and the lower sash is in its lowermost position, these stops 20 and 21 will be depressed and will not interfere with the vertical movement of said sashes. It is essential in order to prevent the cords 5 from interfering with the stop 20 and to prevent said stop from interfering with the movement of the dovetail ribs to locate said stop between the track-bars 10, and in this position the said stop 20 is adapted to overhang both sliding bars 14 and 16 when both sashes are lowered to prevent upward movement of said bars by the sash-weights, and is also so located as to permit both sashes, when lowered, as stated, to be raised high enough to clear the sill-bead 24 when it is desired to swing them inwardly on their hinges. This is also true respecting the stop 21 when used. When the outer or upper sash 8 is elevated and the sash 7 lowered, however, the stop 20 is retracted or moved out of the path of the bar 14 and can no longer act to prevent upward movement of the bar 14 and sash 7. Consequently if the bolt 18 should be retracted in any manner, as by children playing with said bolt, the bar 14 would be left free to be drawn upwardly by the sash-weights and the sash 7 left free to swing open. To obviate this objection, I provide an auxiliary gravity-projected stop 23, secured to the side of the window-casing a short distance below and inwardly of the stop 21 and partially beneath the adjacent inner bead 2 and form said bead upon its inner face with a recess to allow the stop to be projected. This stop 23 is thus arranged to overhang and prevent upward movement of the bar 14 when both sashes are closed and to act as a safety-catch to prevent the sash 7 from being opened by elevating it from without.

In operation, assuming the upper and lower sashes to be in their normal position and it be desired to clean the windows, the upper sash is lowered with its bars to a position below the stops 20 and 21, which spring out and lock said bars against upward movement. The lower sash is now raised a slight distance to free its end from the window-sill bead 24, the stop 23 having first been depressed with the finger until its bars 13 and 14 come into engagement with the stops 20 and 21. In this position both of the window-sashes may be unbolted from the bars 14 and 16 and swung inwardly into the room. The stops 20, 21, and 23 are depressed by the fingers when it is desired to slide the sashes upward past them.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of my invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

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

The combination with a window-casing, of two sets of bars having sliding connection with the inner faces of said casing, sashes pivoted each to one bar of each set, bolts for connecting said sashes to the opposite bars, counterbalancing-weights for the sashes, an automatic stop arranged within the path of movement of a bar of each set, and when both bars are depressed, adapted to spring out and prevent the upward movement of said bars, and a second automatic stop arranged at a point below the first-named stop to engage one of the bars of the innermost set, substantially as forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN LYES.

Witnesses:
W. F. PIERCE,
MARTIN F. MURPHY.