(No Model.) 2 Sheets—Sheet 1.

W. T. WATERSTRAAT.

WINDOW.

No. 561,461. Patented June 2, 1896.

Fig. 1.

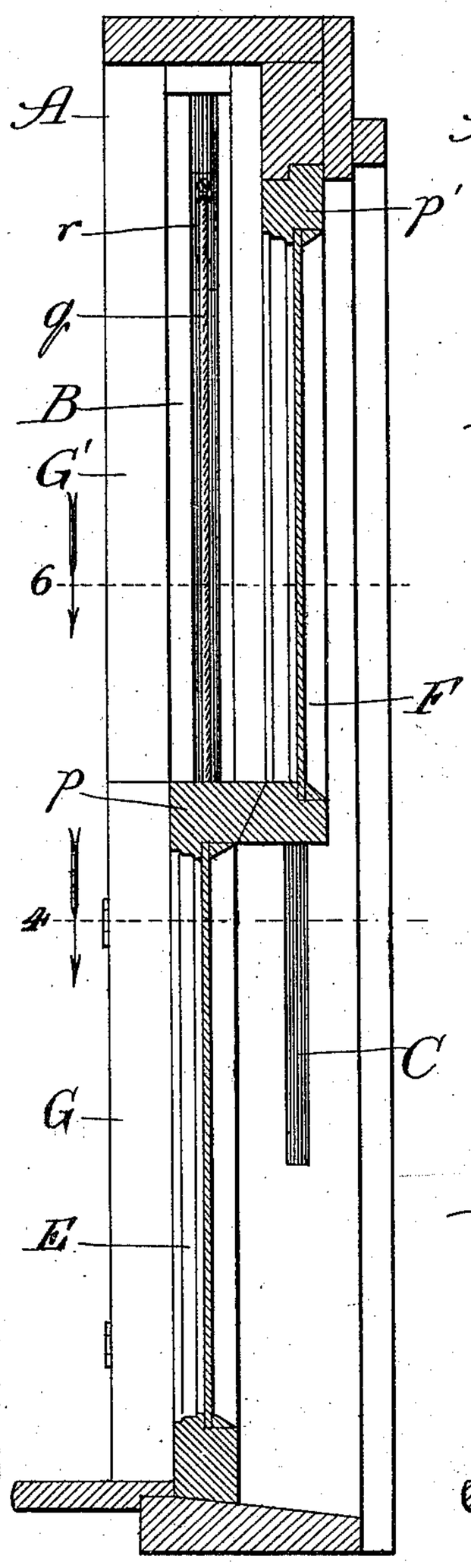


Fig. 2.

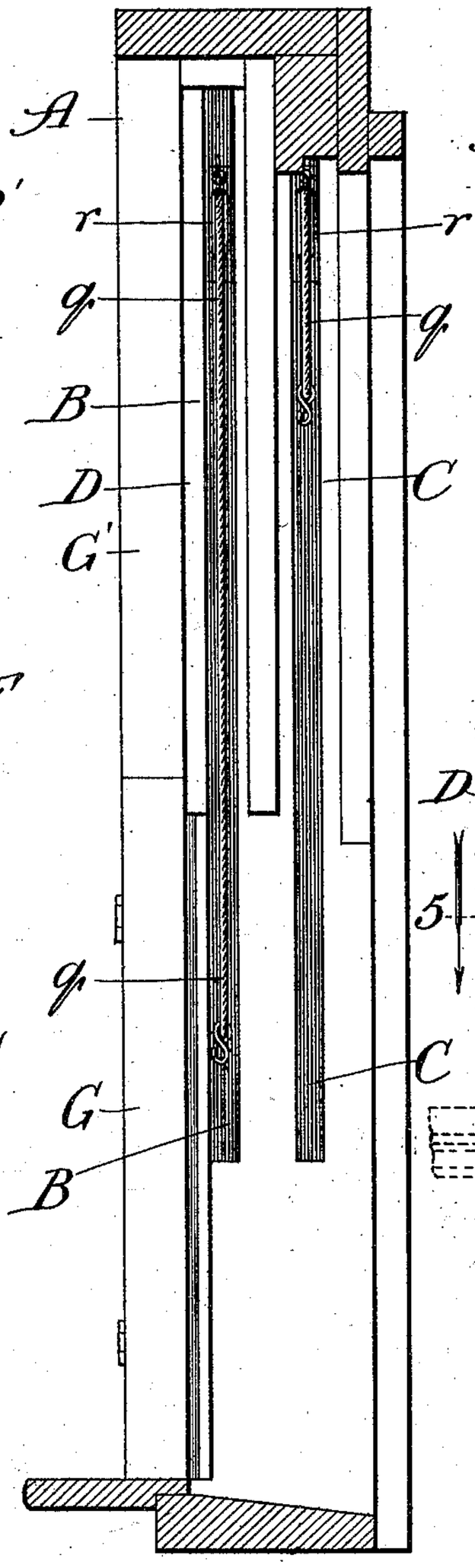
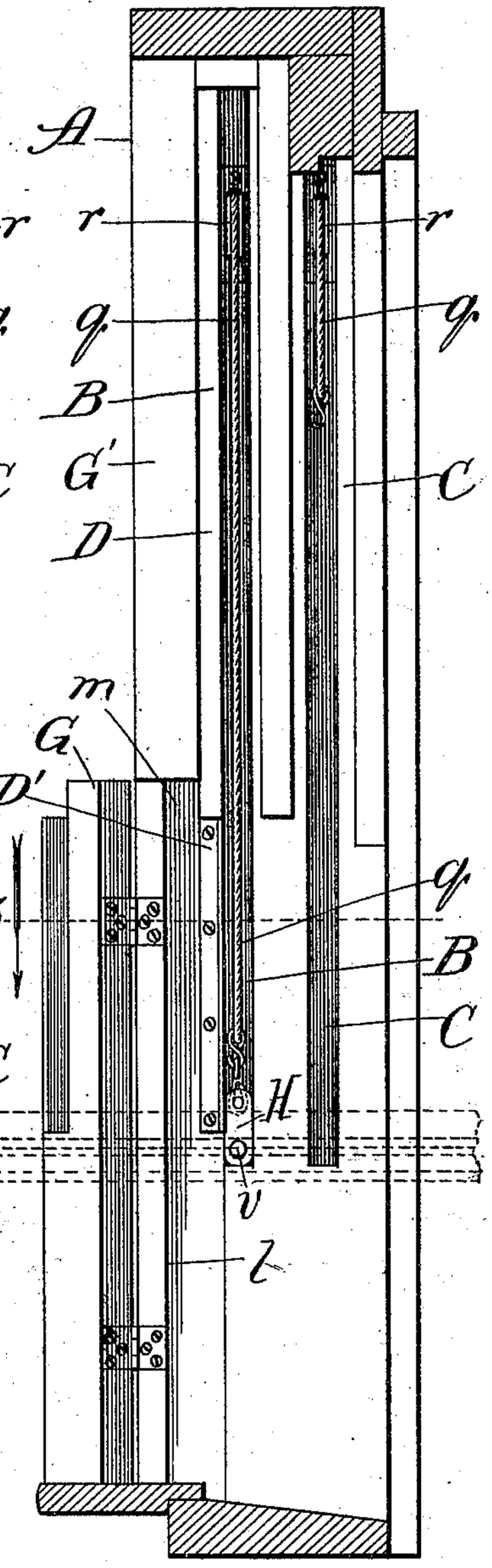


Fig. 3.



Witnesses:
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Attys.

(No Model.) 2 Sheets—Sheet 2.

W. T. WATERSTRAAT.

WINDOW.

No. 561,461. Patented June 2, 1896.

Fig. 4.

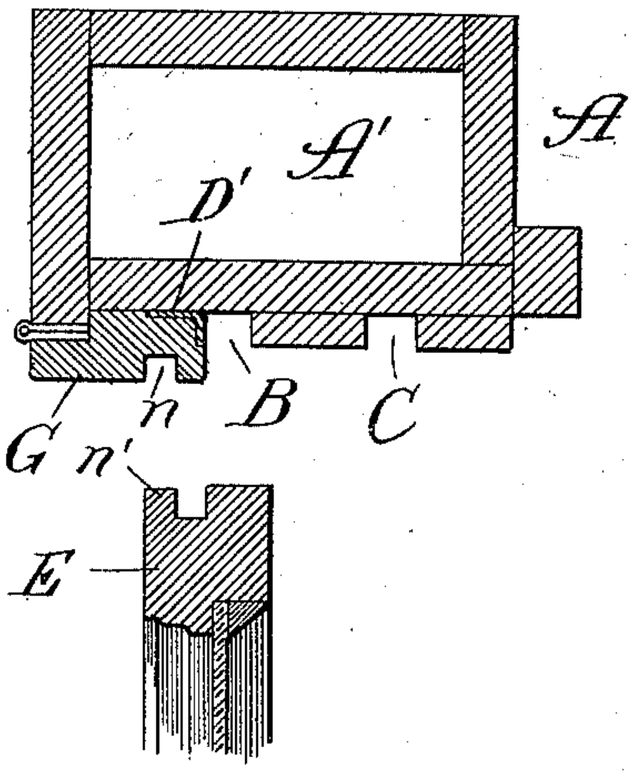


Fig. 5.

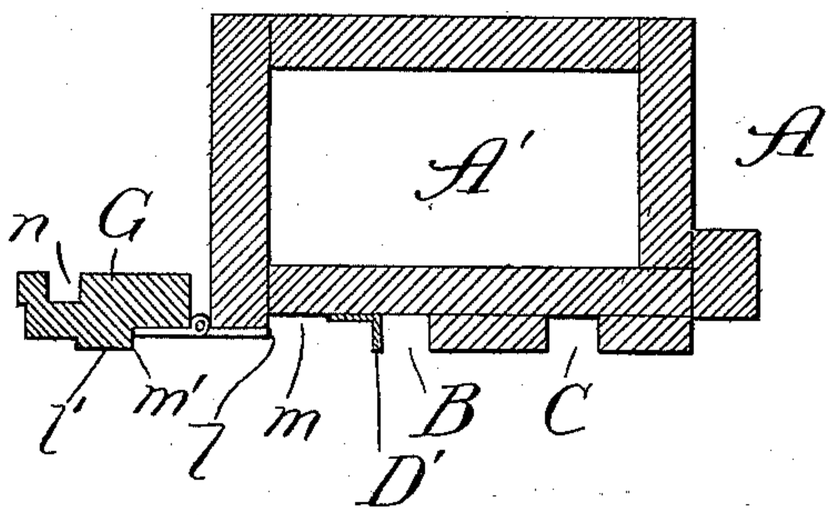
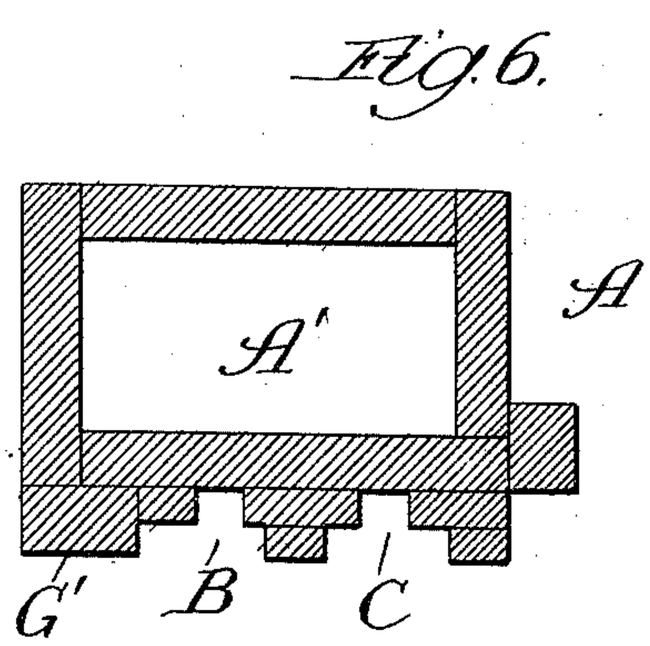


Fig. 8.

Fig. 6.



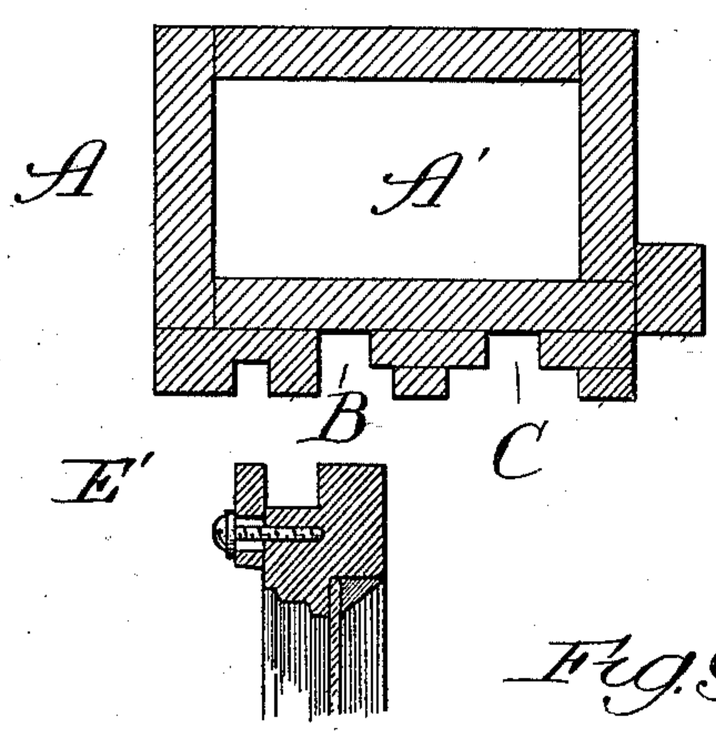


Fig. 9.

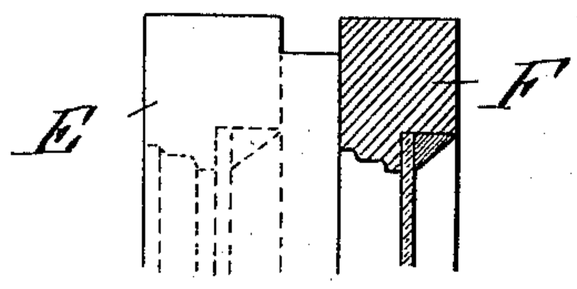
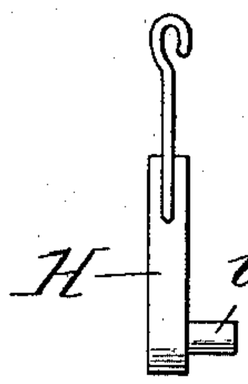
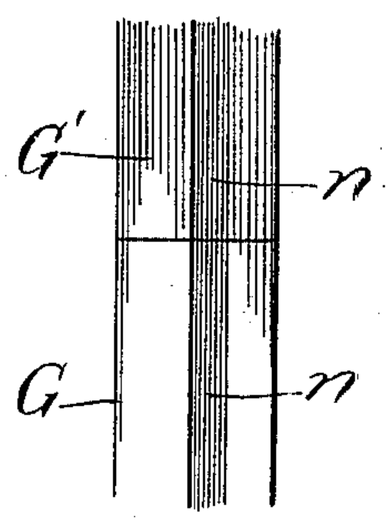


Fig. 7.





Witnesses:
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Lute F. Otter

Inventor:
William T. Waterstraat,
By Lyon, Lyon & Lyon,
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM T. WATERSTRAAT, OF CHICAGO, ILLINOIS, ASSIGNOR TO CARRIE WATERSTRAAT, OF SAME PLACE.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 561,461, dated June 2, 1896.

Application filed January 18, 1896. Serial No. 575,994. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. WATERSTRAAT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Windows, of which the following is a specification.

My invention relates to an improvement for use with the common form of window involving an upper and a lower or outer and inner sash confined in a frame and adapted each to be raised and lowered therein.

More particularly stated, my invention relates to the construction of windows of the variety referred to whereby each sash is adapted to be readily swung inward into the room on lowering it in its frame for the purpose of gaining convenient access to the outer surface of the sash, as for cleaning it.

My object is to improve upon the last-named construction of window by materially simplifying it and increasing its efficiency over all constructions known to me of windows for the same purpose.

Referring to the accompanying drawings, Figure 1 is a vertical sectional view of a window provided with my improvement; Fig. 2, a similar view of the same with the sashes removed to display details covered by the sashes when in position; Fig. 3, a view like that presented by Fig. 1, but showing the hinged stop in its open position with a sash (indicated by dotted lines) in process of being turned on its pivotal support; Fig. 4, a broken section taken at the line 4 on Fig. 1 and viewed in the direction of the arrow, with the sash removed some distance from the side of the casing for clearer illustration; Fig. 5, a section taken at the line 5 on Fig. 3 and viewed in the direction of the arrow; Fig. 6, a view like that presented by Fig. 4, taken at the line 6 on Fig. 1 and regarded in the direction of the arrow; Fig. 7, a view in elevation showing a head detail by which the sash is connected with its supporting-rope; Fig. 8, a cross-sectional view through one side of the casing, showing a modification; and Fig. 9, a broken view in elevation of a detail of the modification.

The generally-stated construction of a window to adapt it for the purpose referred to is as follows: Between the two pulley-stiles or parallel vertical grooves at each inner side of the sash-frame, in which the sash-stiles are respectively guided in the up-and-down movements of the sashes, is interposed a stop reaching from the upper portion of the frame downward short of the plane of the upper rail of the inner sash in its lowered position, and the vertical dimension of the upper sash is such that when lowered its upper rail will be below the plane of the lower ends of the two stops referred to. The weighted cords or analogous means by which the sashes are suspended in the frame are attached to each sash, and the upper portions of the inner confines of the grooves for the stiles of the lower sash are removed to or beyond the height of that sash when down and of the upper sash when lowered. So much of each forward stop for the inner sash as reaches to or slightly beyond its upper end when the sash is lowered is hinged to adapt it to be swung outward, in which position of these stops, then, the lower sash, when down, may be tilted forward into the room to present the outer surface in a position wherein it is conveniently accessible, and on raising the inner sash and lowering the outer one the latter may be similarly tilted.

By means of my improvement all extra mechanism for securing the hinged or removable stops in their normal positions is dispensed with by employing the lower sash to secure them in place, and the hinged stops are arranged to engage at their inner sides with stationary stops on the adjacent sides of the window-casing to afford to them a weather-proof fit and a brace to take the strain of wind or other force exerted against the outside of the window, and thus save therefrom the hinges by which the adjustable stops may be carried.

A is the window frame or casing, at the sides of which are boxes A′ for the weights. (Not shown.) In each side of the frame are the two similar parallel inner and outer vertical guide-grooves B and C, in the central longitudinally-depressed portions of which, at openings near their upper ends, are inserted the pulleys *r* for the cords *q* or analogous medium by which the weights are suspended in the boxes A′.

In the groove B at each inner side of the

window-frame is a stop D, in the form of a strip extending, preferably, from the top of the frame and reaching downward short of the plane of the upper rail *p* of the lower sash E when in its normal lowered position, and also short of the upper rail *p'* of the upper sash F when completely lowered. Angle-arm downward extensions D' of the stops D are provided on the sides of the frame to continue the grooves B for a purpose hereinafter described.

The cleats G', which afford the inner confinements for the pulley-stile grooves B, are each divided from a point above the plane of the lower end of the stop D to form the lower sections G, and each lower section G is provided with a longitudinal groove *n* on its outer side and is hinged to the frame to adapt it to be opened and closed like a swinging door. The sides of the frame, where the sections G bear against them when closed, are provided with longitudinal offsets *m*, affording shoulders *l* adjacent to them, and the opposing sides of the sections G are provided with longitudinal shoulders *l'* to fit in the offsets *m* when the hinged sections are thus closed and with offsets *m'* to receive the shoulders *l*, which latter, by the sections G thus bearing against them, take the strain of wind-pressure against the window and relieve the hinges of the sections from such strain. Owing to the nature of the views selected for illustration, only one side of the casing and sash is shown. It will be understood, however, when the various parts shown are each referred to in the plural, that they are duplicated to provide one at each side of the casing. The stiles of the inner sash are provided along their sides which oppose the stops D with longitudinal tongues *n'* to enter the grooves *n* in the sections G. As will thus be seen, when the hinged stop-sections are closed the grooves *n* therein coincide with the tongues *n'* on the inner sash, which enter the grooves when that sash is down, whereby the sections are locked by the sash in their closed positions.

As shown, the ends of the cords *q* for each sash E and F are linked to heads H, which fit in the pulley-stile grooves B and C to slide up and down therein, and each of the window-sashes is centrally journaled by studs *v*, projecting from its sides in a pair of these heads. The angle-irons D' continue the grooves B to guide the heads H of the inner sash below the ends of the stops D and admit the inner edges of the hinged stops G, when closed, and which would be obstructed against closure were the stops D continued like the extensions D'. I do not limit my improvement to the particular manner and means thus described of pivotally supporting the window-sashes to adapt them to swing or tilt, as the purpose may be otherwise accomplished.

To enable the lower sash to be swung, it is first raised and the stop-sections G are opened or turned inward on their hinges, thereby removing them from obstructing the sash-stiles, when the sash after lowering it may readily be swung on its journals into position to present its outer surface uppermost or innermost.

To enable the upper sash F to be similarly swung, it is pulled down to its lowermost position, wherein its upper rail is below the plane of the lower ends of the stops D and that of the lower rail of the inner sash E, which has previously been raised, when the sash F may readily be turned forward, as described of the sash E. After a sash has been thus turned it may obviously be turned back into the position with its stiles in the pulley-stile grooves and adjusted into its normal position, when by closing the hinged stops G the window is as tight as ever. Of course in the case of readjusting into its normal position the inner sash E it must first be raised to permit the stops G to be closed, after which the sash is lowered to bear against the hinged stops, as described.

In Figs. 8 and 9 I have shown a modified construction whereby the tongues *n'* on the inner sash are formed upon facings E', separably fastened on the inner surfaces of the sash-stiles to coincide with the grooves *n*, then provided further inward in the stop-sections G. The purpose of this provision is that of enabling the parts to be more readily fitted in case of their disarrangement, as by warping, swelling, and the like. When this modification is employed, the groove *n* in each stop G should be continued upward lengthwise of the adjacent cleat G'.

While the stop-sections G are shown and described as being hinged, it is within my invention to attach them to the window-casing in any suitable way to render them removable for permitting the window-sashes to be swung in the manner described.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a window-frame having side grooves for the inner and outer sashes and a stop at each side of the frame, extending downward short of the upper plane of the top of the lowered sash, the removable stops opposite each other at the inner sides of the lower portion of the frame and affording guides for the inner sash, the stiles of which when lowered bear against the inner faces of said removable stops to lock them in their closed position, and when raised beyond the upper ends of said stops, unlock them to permit their removal, substantially as described.

2. In combination with a window-frame having side grooves for the inner and outer sashes and a stop at each side of the frame, extending downward short of the upper plane of the top of the lowered sash, the stops hinged opposite each other at the inner sides of the lower portion of the frame, and tongue-and-groove connections between the inner sash and said stops, affording guides for said sash, the stiles of which, when lowered, bear

against the inner faces of said stops to lock them in their closed position, and when raised beyond the upper ends of said stops, unlock them to permit them to be swung inward on their hinges, substantially as and for the purpose set forth.

3. In combination with a window-frame having side grooves for the inner and outer sashes and a stop at each side of the frame, extending downward short of the upper plane of the top of the lowered sash, angle extensions of said stops and the removable stops at the inner sides of the frame affording guides for the inner sash, the stiles of which bear against the inner faces of said removable stops to lock them in their closed position, substantially as described.

4. In combination with a window-frame having side grooves for the inner and outer sashes and a stop at each side of the frame, extending downward short of the upper plane of the top of the lowered sash, offsets *m* and shoulders *l* on the inner sides of the frame, and hinged stops G at said inner sides provided with offsets *m'* and shoulders *l'* to engage, respectively, said shoulders and offsets on the frame, said hinged stops affording guides for the inner sash, the stiles of which bear against the inner faces of said stops to lock them in their closed position, substantially as and for the purposes set forth.

5. In combination with a window-frame having side grooves B and C for the inner and outer sashes and a stop D at each side of the frame extending downward short of the upper plane of the top of the lowered sash, heads H confined in said grooves and on which the sashes are journaled near the centers of their stiles, the weighted cords passing over the guide-pulleys in the frame and connected with said heads, tongues *n'* on the inner-sash stiles, and hinged stops G at the inner sides of the frame provided with grooves *n* to receive said tongues *n'*, substantially as and for the purpose set forth.

WILLIAM T. WATERSTRAAT.

In presence of—
J. H. LEE,
M. J. FROST.