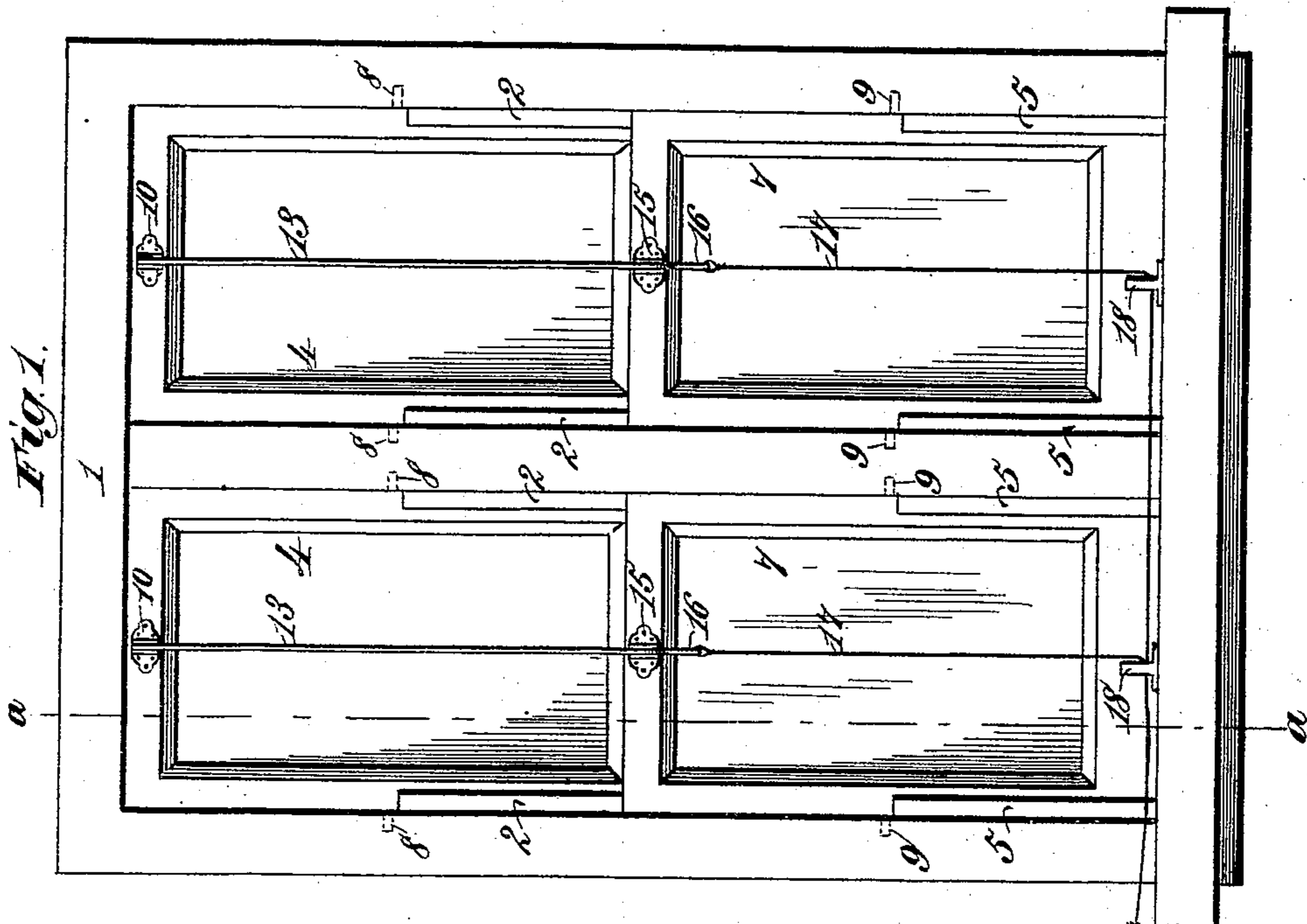
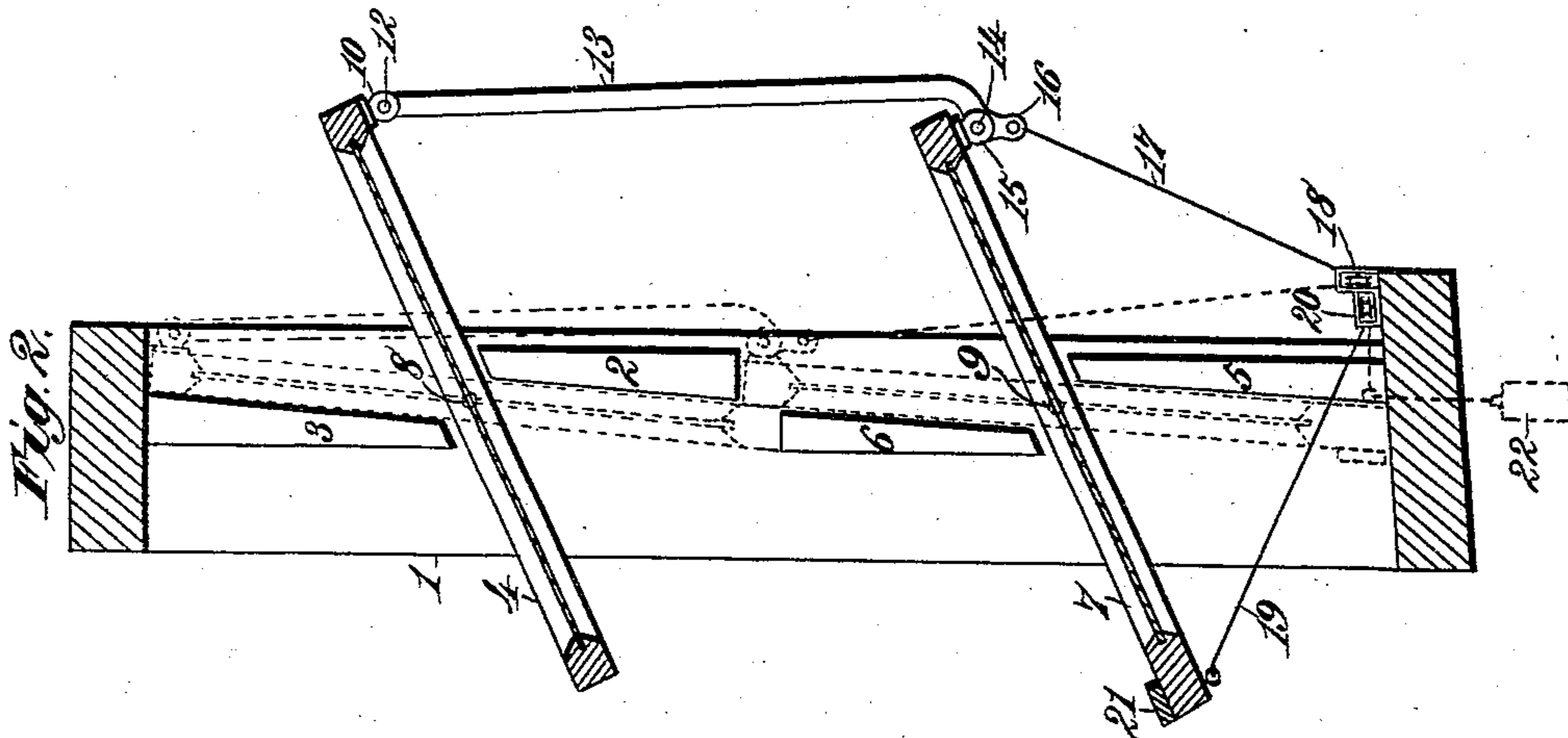


(No Model.)

H. J. CASEY.  
SASH OPERATING MECHANISM.

No. 486,765.

Patented Nov. 22, 1892.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

HARVEY J. CASEY, OF DURHAM, NORTH CAROLINA.

## SASH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 486,765, dated November 22, 1892.

Application filed December 12, 1891. Serial No. 414,876. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY J. CASEY, a citizen of the United States, residing at Durham, in the county of Durham and State of North Carolina, have invented new and useful Improvements in Sash-Operating Mechanism, of which the following is a specification.

The invention has for its object to provide novel, simple, efficient, and economical means for connecting upper and lower window-sashes in such manner that by simply swinging one of the sashes into a closed or opened position the other sash will likewise be closed or opened.

To accomplish this object, my invention involves the features of construction and the combination or arrangement of devices hereinafter described and claimed.

This invention is illustrated in the accompanying drawings, in which—

Figure 1 is an inside elevation showing my invention applied to two pairs of window-sashes; and Fig. 2 is a vertical sectional view taken on the line *a*, Fig. 1.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a window-frame, 2 and 3 the inner and outer window-strips for the upper sash 4, and 5 and 6 the inner and outer window-strips of the lower sash 7. The window-strips are provided with inclined inner edges, so that the window-sashes will stand inclined when in their closed positions, as indicated by dotted lines in Fig. 2. The upper and lower extremities of the window-strips 2 and 3, and likewise the upper and lower extremities of the window-strips 5 and 6, are separated from each other a sufficient distance to permit of the window-sashes swinging in the arcs of circles, for which purposes the sashes are pivoted to the window-frame centrally between their upper and lower ends through the medium of suitable pivot-pins 8 and 9.

The top rail of the upper sash is provided with a projecting bracket 10, to which is pivotally attached by a suitable pivot 12 one extremity of a link 13, which is pivotally attached by a pivot-pin 14 to a bracket 15 on the top rail of the lower sash. The lower end portion of the link 13 is extended below its

pivot-pin 14 to provide an actuating-arm 16, to which is attached a cable 17 of any material suitable for the conditions required. This cable extends downward to and engages a pulley or other suitable guide 18, mounted on the base of the window-frame, from whence the cable extends horizontally to a suitable point where it can be operated by hand or otherwise for the purpose of pulling the arm 16 in a downward direction, which has the effect of simultaneously swinging both sashes to an open position. A cable 19, attached at one end to the bottom rail of the lower sash, extends to and engages a pulley or other suitable guide 20 on the base of the window-frame, from whence this cable extends to a suitable point to be operated for the purpose of closing the window-sashes. In practice, however, I provide the bottom rail of the lowermost sash with a counter-weight 21, so that if the window-sashes are in an open position, as represented by full lines in Fig. 2, and the cable 17 is released, the counter-weight will swing the lower sash to its closed position, and consequently the link 13 will operate to close the upper sash. The cable 19 could be provided with a counterbalance-weight 22, as indicated by dotted lines in Fig. 2, for the purpose of automatically closing the sashes; but the counter-weight on the bottom rail of one of the sashes is preferred.

The invention can be employed with a single pair of window-sashes or any desired number of pairs of sashes, in which event the cables 17 will be so connected that they can be simultaneously operated to open or close all the sashes in the series.

As before stated, the cable 17 may be operated manually; but I do not confine myself to any particular means for operating the cable or cables, for obviously various mechanical contrivances will suggest themselves to those skilled in the art for accomplishing this purpose.

By drawing the cable 17 lengthwise to a greater or less extent the window-sashes will be more or less opened, and by properly securing said cable the sashes will be retained or held in the open position to which they have been adjusted.

The invention is particularly useful in buildings having a large number of pivoted

sashes which require to be frequently opened and closed, and the devices are such that a simple, efficient, and economical mechanism is provided for accomplishing the desired result.

Having thus described my invention, what I claim is—

1. The combination, with a window-frame and a pair of sashes pivoted therein at or near their center, of a rigid link having one end portion pivotally connected with the top rail of the upper sash and its opposite end portion pivotally connected with the top rail of the lower sash, and means for swinging one of the sashes open or closed, and thereby cause it through the rigid link to swing the other sash open or closed, substantially as described.

2. The combination, with a window-frame and an upper and a lower window-sash pivoted in the frame, of a link pivoted at one end to the top rail of the upper sash and at its opposite end to the top rail of the lower sash, a pulley or guide on the window-frame, a cable engaging the pulley or guide and arranged

to swing one of the sashes open or closed and thereby cause it through the link to swing the other sash open or closed, and cable and pulley mechanism for swinging the lower sash, substantially as described.

3. The combination, with a window-frame and an upper and a lower window-sash pivoted therein, of a link having one end pivoted to the top rail of the upper sash and its opposite end pivoted to the top rail of the lower sash and provided with a projecting arm, a pulley or guide on the window-frame, a cable engaging the pulley or guide and connected with the projecting arm of the link for opening the lower sash, and a cable connected with the bottom rail of the lower sash for closing the latter, substantially as described.

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

HARVEY J. CASEY. [L. S.]

Witnesses:

W. R. PARRISH,

R. F. WHITEHURST.