

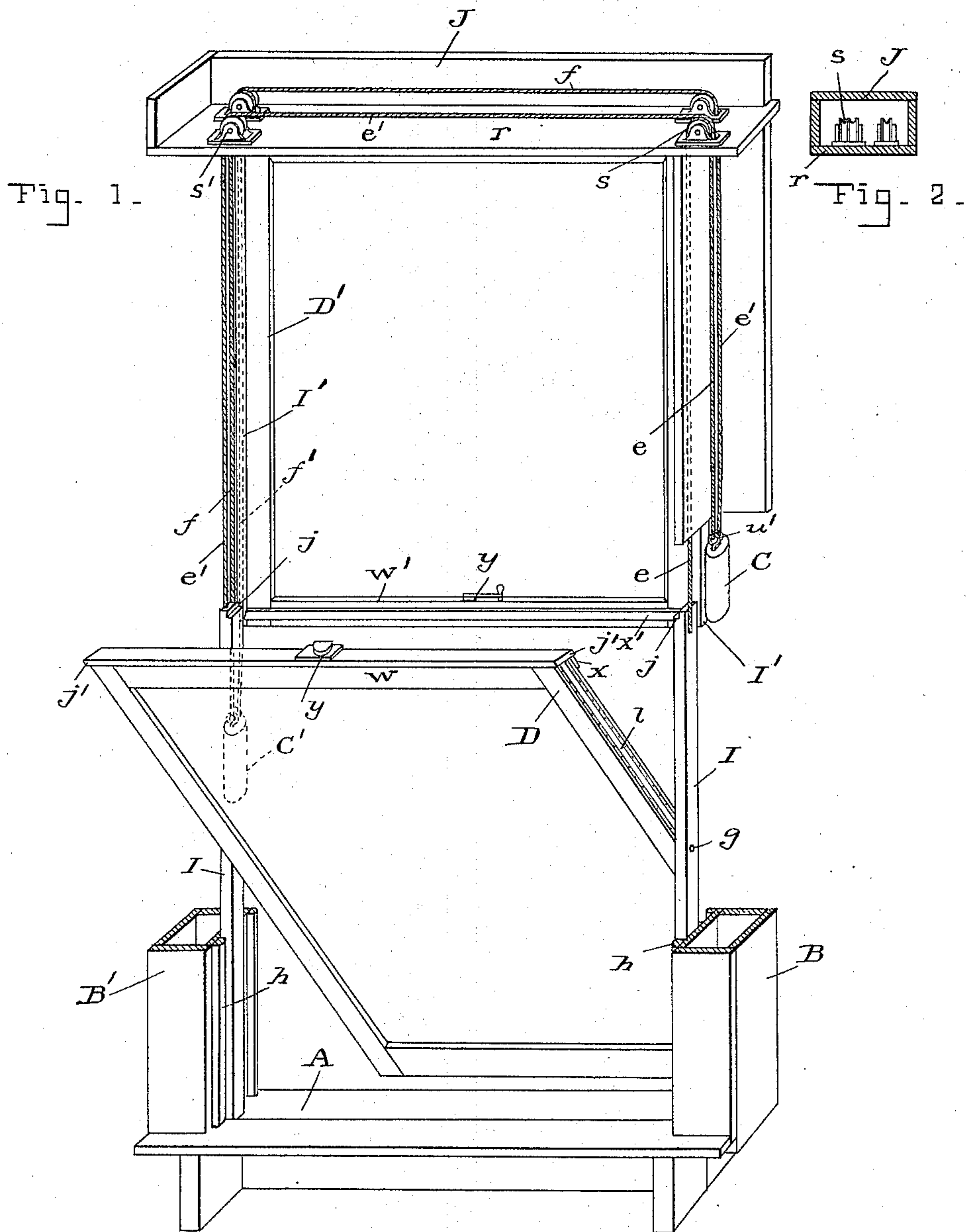
(No Model.)

2 Sheets—Sheet 1.

F. CRAMBLITT.
REVERSIBLE WINDOW SASH.

No. 573,261.

Patented Dec. 15, 1896.



WITNESSES :-

Charles B. Mann Jr.
Chapin A. Ferguson.

INVENTOR :

Frank Cramblitt

By
Chas. B. Mann

ATTORNEY.

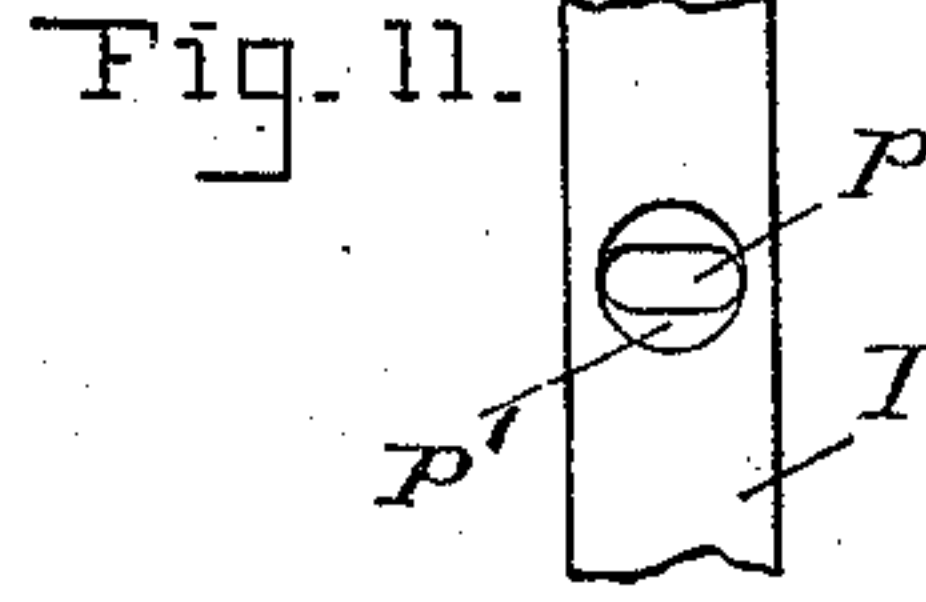
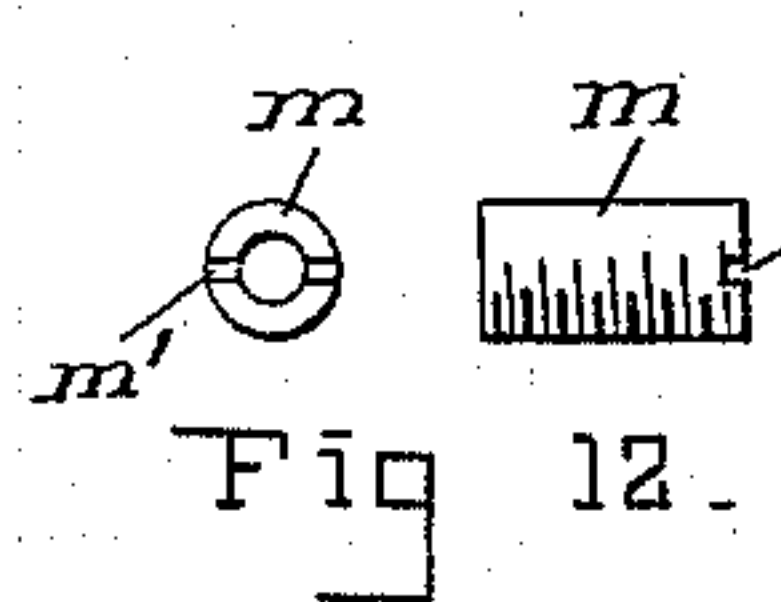
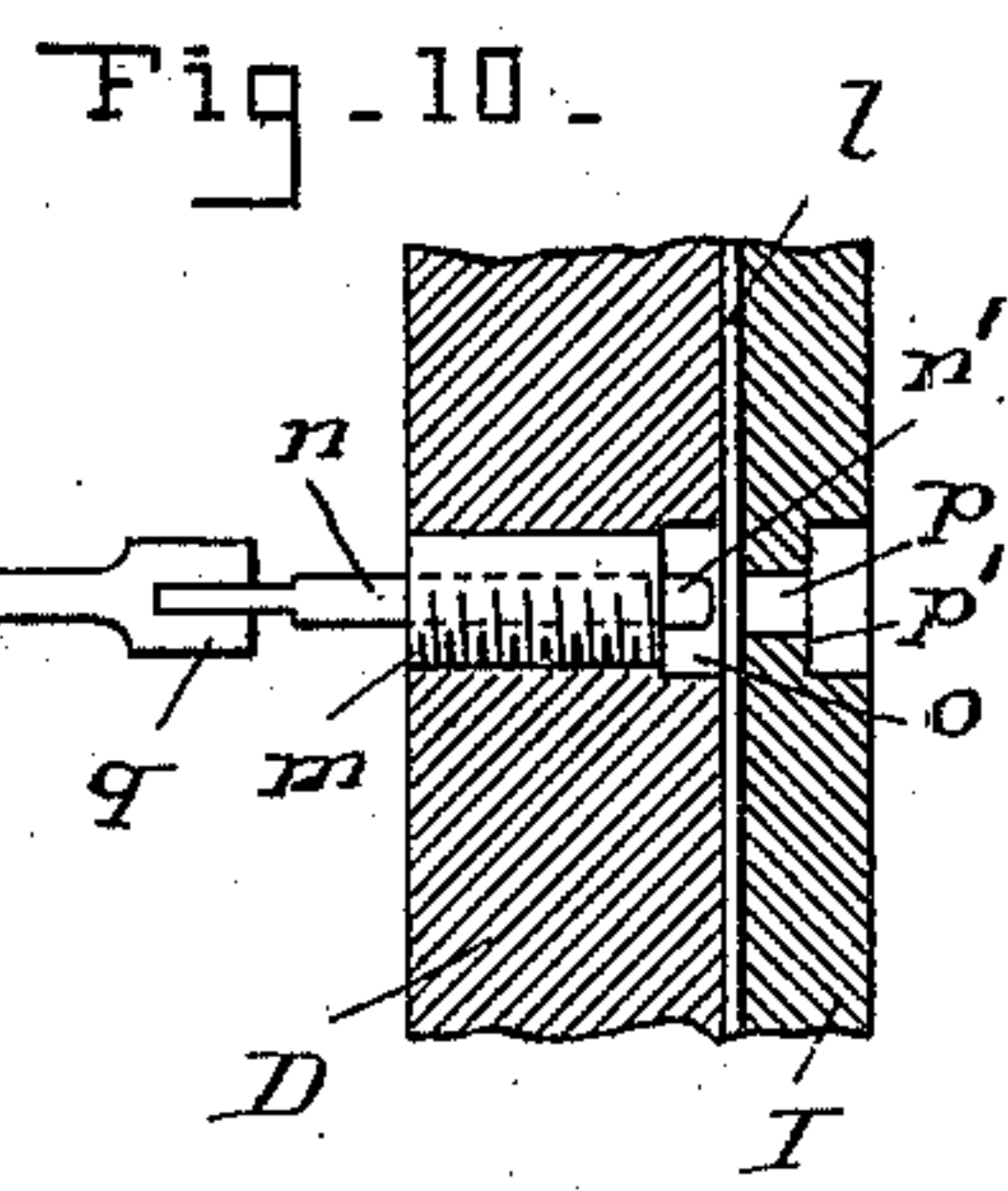
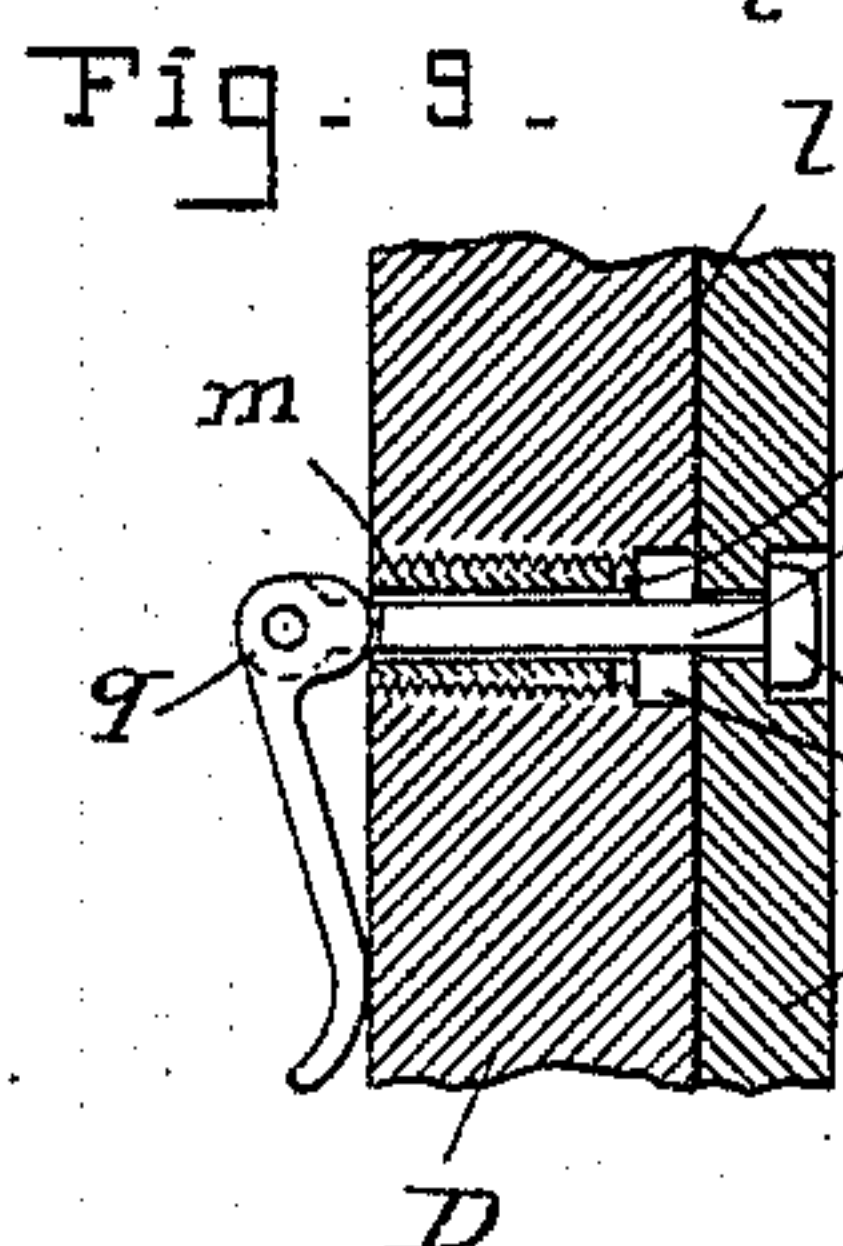
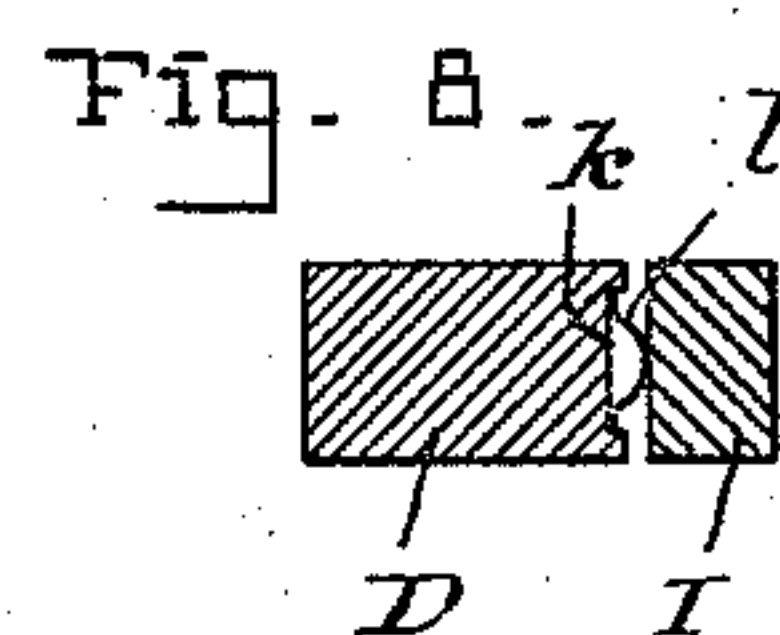
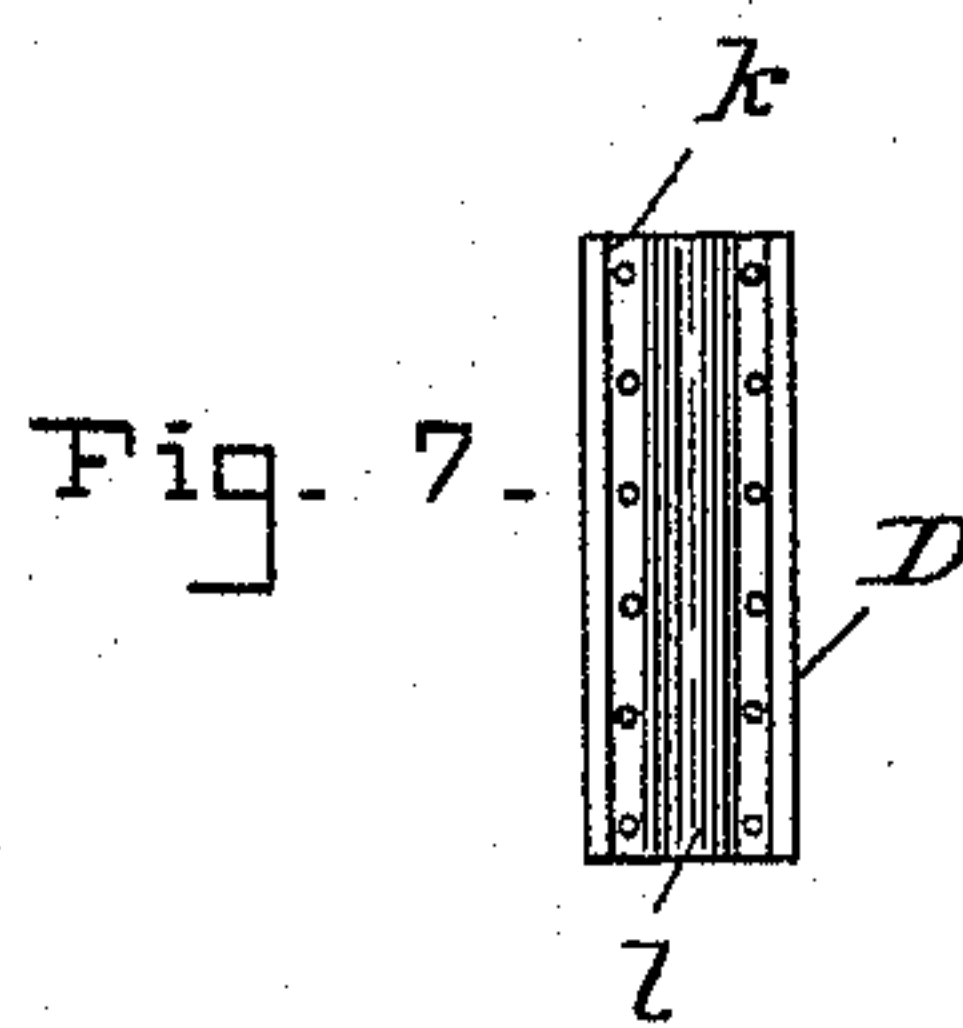
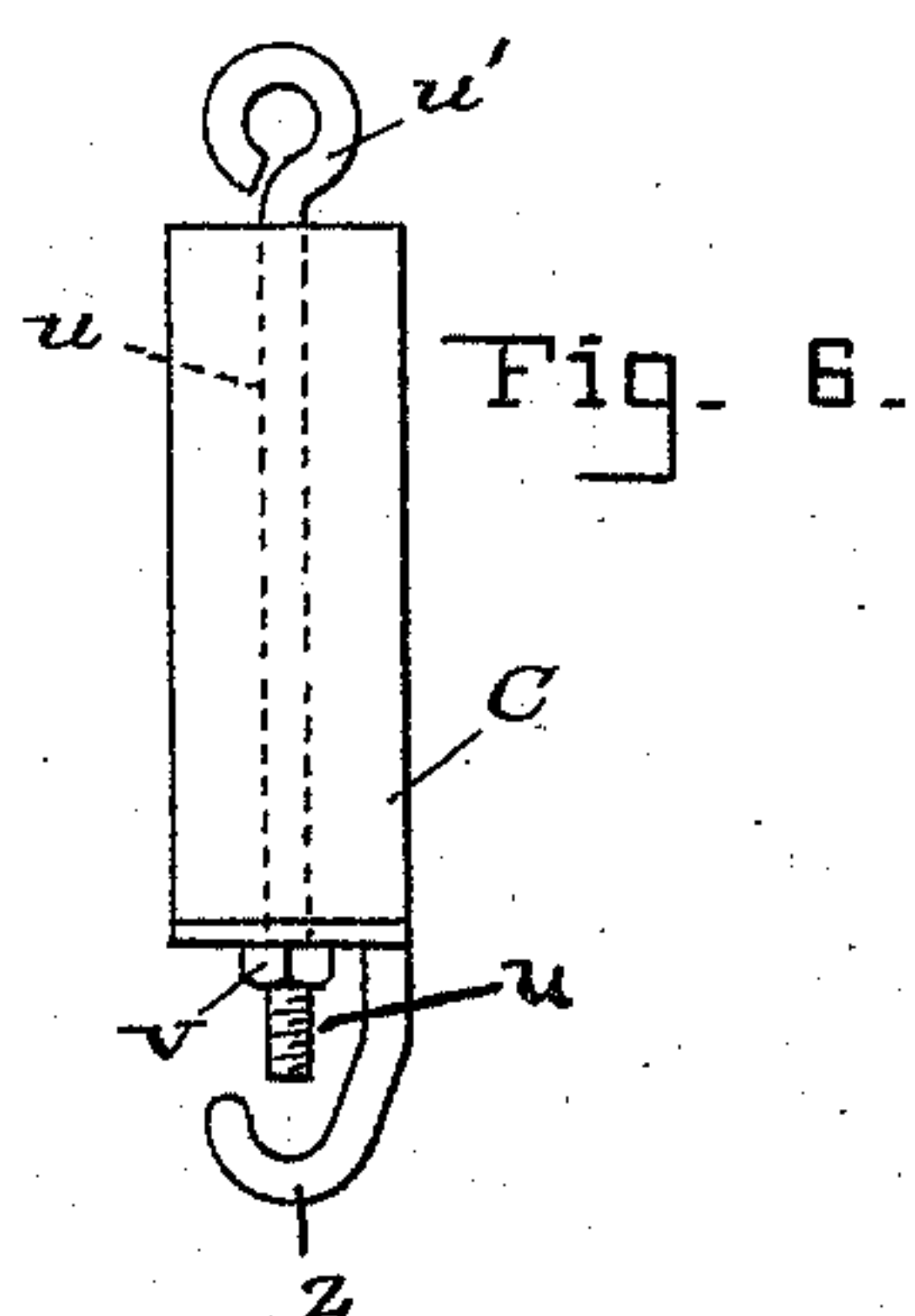
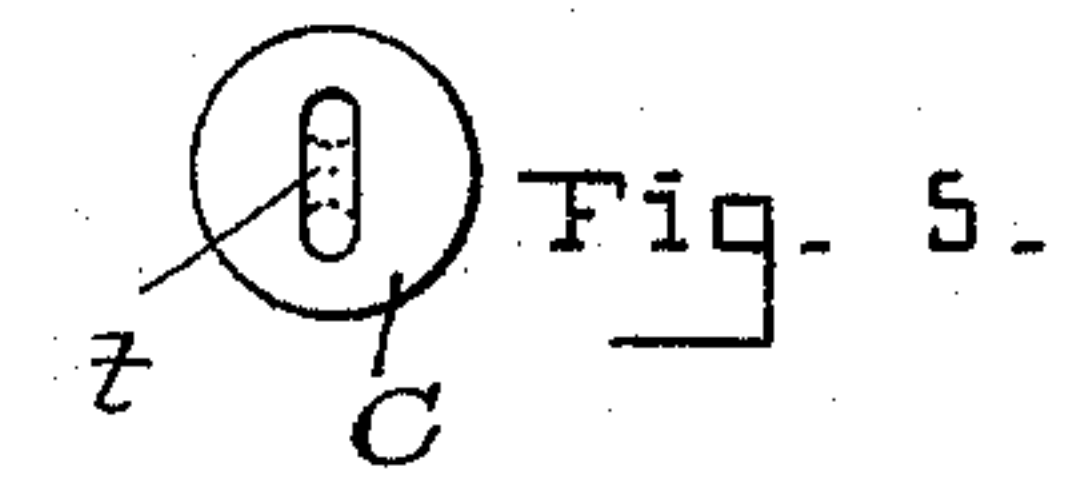
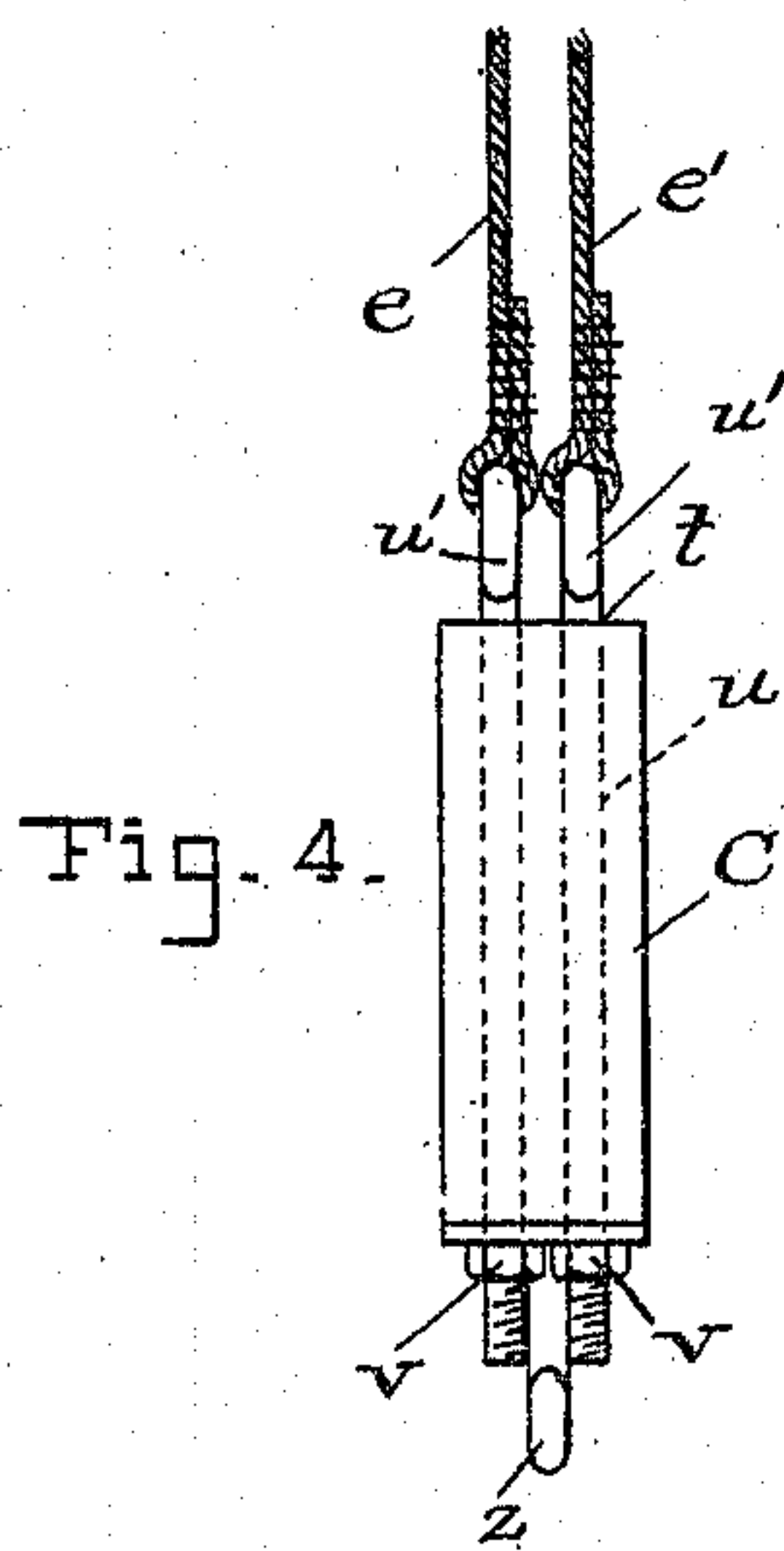
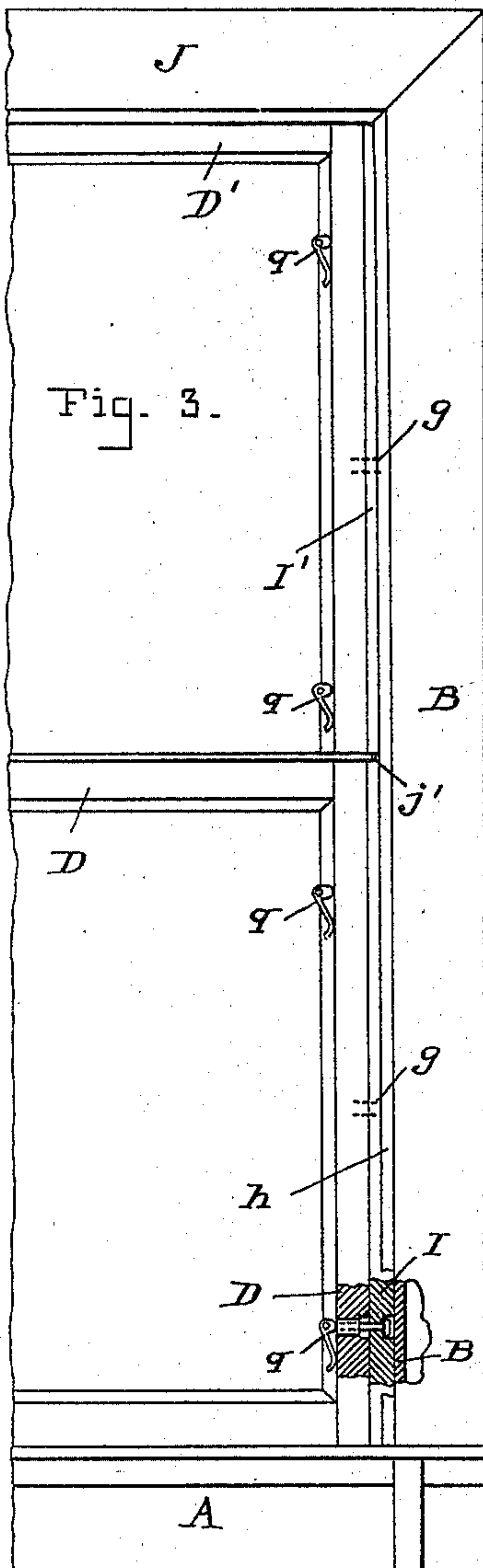
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2 Sheets—Sheet 2.

F. CRAMBLITT.
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UNITED STATES PATENT OFFICE.

FRANK CRAMBLITT, OF BALTIMORE, MARYLAND.

REVERSIBLE WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 573,261, dated December 15, 1896.

Application filed August 1, 1896. Serial No. 601,303. (No model.)

To all whom it may concern:

Be it known that I, FRANK CRAMBLITT, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Reversible Window-Sashes, of which the following is a specification.

This invention relates to improvements in that class of window-sashes which raise and lower by means of cords and weights and are hung on pivots to admit of reversing.

The invention will first be described, and then pointed out in claims.

Referring to the accompanying drawings, Figure 1 is a perspective view showing a window-frame, the sashes, and the cords and weights. Parts of the frame are in section and parts are broken away entirely to more clearly show the operative features. Fig. 2 is a vertical section of the top horizontal box. Fig. 3 is a front elevation of one-half of a window frame and sashes. Figs. 4, 5, and 6 are views of one of the sash-weights. Fig. 7 is a view of the sash-packing. Fig. 8 is a cross-section of the side of the sash, the sliding strip, and packing. Fig. 9 is a section showing one of the clamps in locking position. Fig. 10 is a similar view showing the clamp disconnected from the sliding strip. Fig. 11 shows a face view of the sliding strip. Fig. 12 shows two views of the tube.

The letter A designates the window-frame, which has at each side vertical boxes B B' for the sash-weights C C'. The lower sash D has its two cords *ee'* so arranged, as will be hereinafter described, that both connect with one weight C, say, in the box B at the right-hand side of the frame, while the upper sash D' has its two cords *ff'* connect with the weight C' in the box at the left-hand side of the frame, or vice versa.

Each sash has at its sides central pivots *g*, attached to vertically-sliding strips, those for the lower sash being designated I and for the upper sash I'. These sash-strips slide up and down in the usual guide-strips *h* on the window-frame, and a sash-cord is attached to each sash-strip near its upper end. The upper end of each lower vertically-sliding strip I has a notch *j* on the side adjoining the sash, and the top rail of the sash has a bar with

projecting ends *j'*, which take into the said notches *j* when the sash is in position to move up or down. These projecting ends *j'* cover and close the top end of the joint or space between the sides of the sash and said strips, and when the sash is raised they serve to support the sash in the hanging position and relieve the pivots *g* from sustaining the sash-weight alone.

Each side of the sash has, on the face which confronts the strips I, a central vertical channel *k*, and a strip of suitable packing material *l*, broader than said channel, is placed therein and secured by tacks or other means. The packing material being broader than the channel bulges or puffs out at its center on a vertical line, and said bulge or puff serves as an elastic packing to close the joint or space between the sides of the sash and the sliding strip.

The sides of the sash are provided with special clamps adapted to connect with the sliding strips when the sash is in position to move up or down and to disconnect from said strips when it is desired to tilt the sash on its pivots. Each of these clamps comprises a tube *m*, which is exteriorly screw-threaded and provided with a notch *m'* on its end for a screw-driver and thereby is screwed into a hole bored in the sash. A shank *n* passes through this tube, and its outer end has a cross-head *n'*, and said shank is movable endwise in the tube to project or retract the said cross-head. When retracted, as in Fig. 10, the cross-head takes position in a recess *o* in the sash, and when in this position the sash may be tilted. When projected, the cross-head passes through an elongated slot *p* in the sliding strip, and the shank may then be turned a one-quarter revolution and thereby cause the cross-head to engage with shoulders *p'* at each side of said slot and in a recess in the strip. The inner end of the shank has pivoted to it a cam *q*. This cam is adapted to bear on the end of the tube *m* when in the locked position, the sash being vertical, and when the cam is turned one way its effect is to leave the shank loose and free to be turned a quarter-revolution, but when the cam is turned the other way and the shank is projected its effect is to draw the shank *n* and

cause the cross-head n' to engage said shoulders p' . It will be seen that if the cam is turned when the cross-head is engaged with the shoulders p' the effect will be to tightly draw the sliding strip I against the packing material l , and thereby make a close joint between the side of the sash and said sliding strip. By preference four clamps may be employed for each sash.

Were the sliding strips I or I', to which the sashes are pivoted, hung to cords and weights in the same manner that sashes not pivoted are hung it would often be practically inoperative to tilt the sash on the pivots g , that is to say, should the sash be tilted from its normal perpendicular position to a horizontal position for the purpose of washing the outer side of the glass it might be difficult or troublesome to tilt it back again to said perpendicular position. This difficulty would arise at the time the sash is in the horizontal position and by reason of the cord and weight at one side slightly drawing one strip upward while the strip and weight at the opposite side would remain stationary, and thereby the pivoted sash would be forced out of its level position and would assume a skewed or laterally-tilted position. In other words, one side of the sash would be a little higher than the other side. Now when this condition exists it would be very difficult to readjust the sash and get it movable again. I have found that this difficulty is avoided entirely by hanging both of the sliding strips I of the lower sash D to cords which are attached to one weight C instead of two, and in like manner hanging both of the sliding strips I' of the upper sash D' to cords which are attached to a single weight C'. In this arrangement one weight only is the counterbalance for each sash and its two strips, and therefore it is impossible for one strip to be drawn up any more than the other. In carrying this out I make a box J across the horizontal top of the window-frame and form holes—one for each cord—in the bottom r of this box, the said bottom constituting the top of the window-frame.

Within the top box are pulleys for the cords to run over. For the cords of the lower sash D a double pulley s is placed at one side, (the right-hand side in the present instance,) and the cord e from the right-hand sliding strip I passes up through one of the holes and then over one of the grooves of the double pulley and down into the vertical box B and is attached to the weight C. The other cord e' from the left-hand sliding strip passes up through one of the holes and then over a single pulley S' . Thence this cord stretches horizontally across the top box J and over the second groove of the double pulley, and, finally, down into the vertical box B, where its mate cord is, and is attached to the same weight C, independently of the other cord e . This one weight C, therefore, is the counterbalance

for the pivoted lower sash D and its two sliding strips I.

In like manner the upper sash D' and two sliding strips I' are counterbalanced by the weight C' at the opposite side of the window-frame.

To insure that both cords of the same sash will be kept equally taut between their respective strips and the same weight C or C', and thus insure that the weight will lift alike on both strips, I provide means for independently adjusting the two cords, so that one may be readily tightened or loosened without disturbing the other. This means is shown in Figs. 4, 5, and 6. The weight C has a longitudinal passage t , and two bolts u extend through this passage. Each bolt has at its upper end an eye u' , and the two cords e e' connect with these eyes. The lower ends of the two bolts project below the weight and are screw-threaded, and a nut v is on each of the ends. It will be seen that the nut on either bolt may be tightened or loosened, and thereby either cord may be independently adjusted. The lower end of the weight has a pendent hook z , on which extra weights may be hung, if necessary.

The meeting-rails w w' of the upper and lower sashes, respectively, have reversely-beveled strips x x' , which overlap when the two sashes are in the closed position. These strips make a tight joint. A sash-lock y is on these meeting-rails and fastens the two sashes.

Having thus described my invention, what I claim is—

1. In a window-frame the combination of two vertically-sliding strips; a sash between the two strips and pivoted thereto; a counterbalance-weight at one side of the window-frame—said weight provided with two adjustable bolts; and two cords, one attached to each of said side strips and each connected with a different one of said adjustable bolts on the same counterbalance-weight, whereby both cords of the same sash may be kept equally taut between the two strips and the one weight.

2. In a window-frame the combination of two vertically-sliding strips each having an elongated slot, p , through it, a recess, and shoulders, p' , at each side of said slot; a sash between the two strips and pivoted thereto and a hole through the sash with a recess, o , on the edge adjoining the sliding strip; a clamp-shank, n , through the said hole in the sash and provided on its end with a cross-head, n' , to enter the said elongated slot in the strip; and a cam, q , to operate said shank, whereby the shank is drawn entirely out of the sliding strip when the sash is to be tilted.

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

FRANK CRAMBLITT.

Witnesses:

CHARLES B. MANN, Jr.,
CHAPIN A. FERGUSON.