(No Model.)

F. CRAMBLITT.

REVERSIBLE WINDOW SASH.

No. 603,478. Patented May 3, 1898.

Fig. 1.

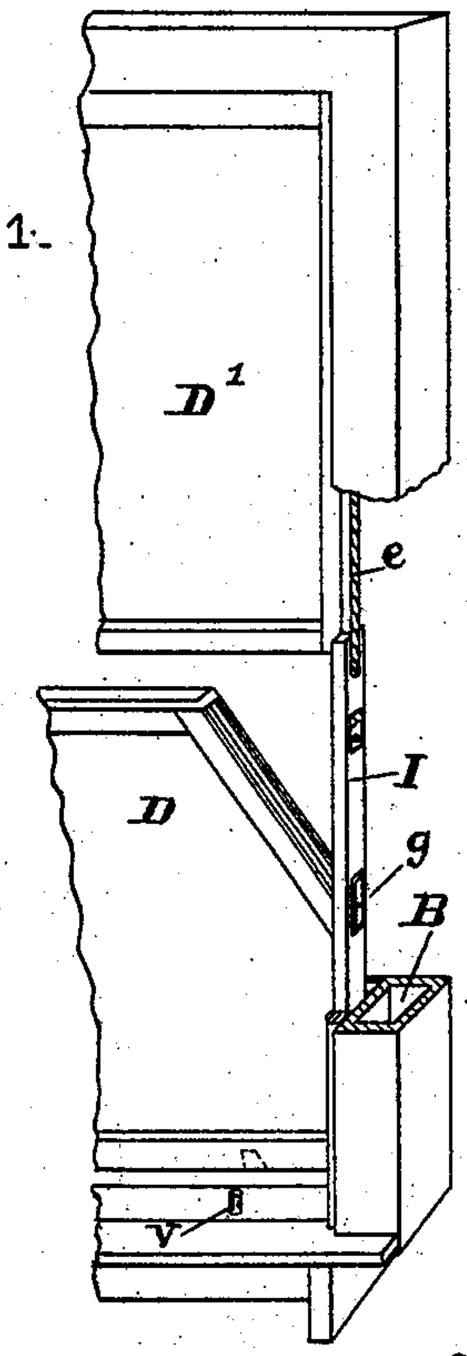


Fig. 2.

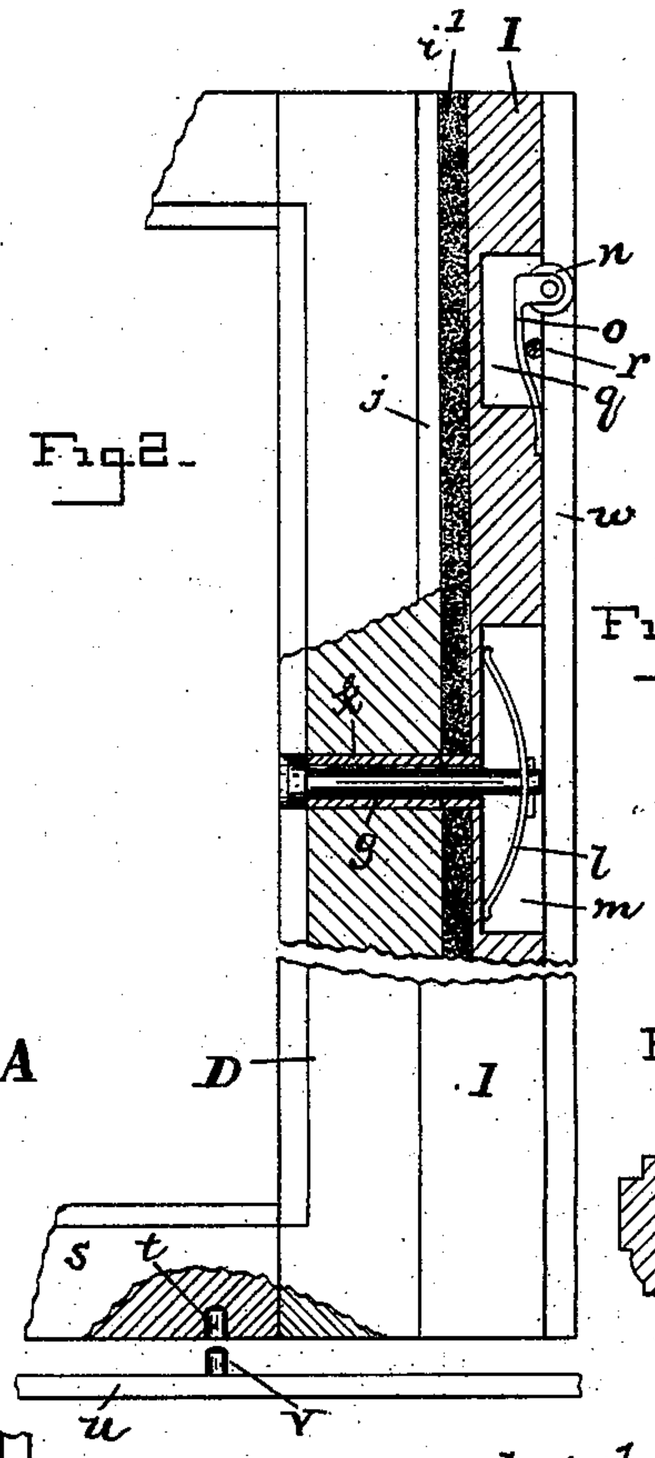


Fig. 3.

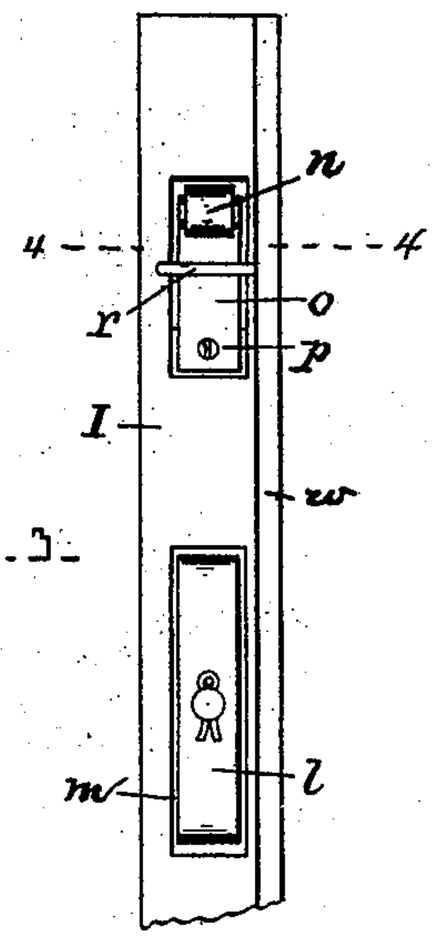


Fig. 5.

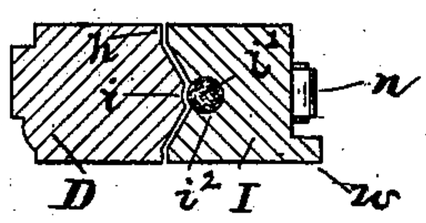


Fig. 6.

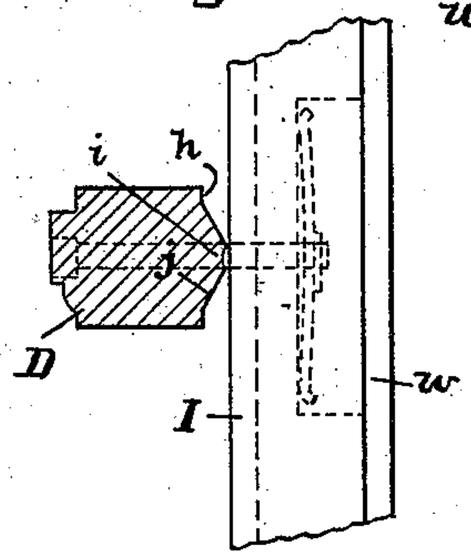


Fig. 7.

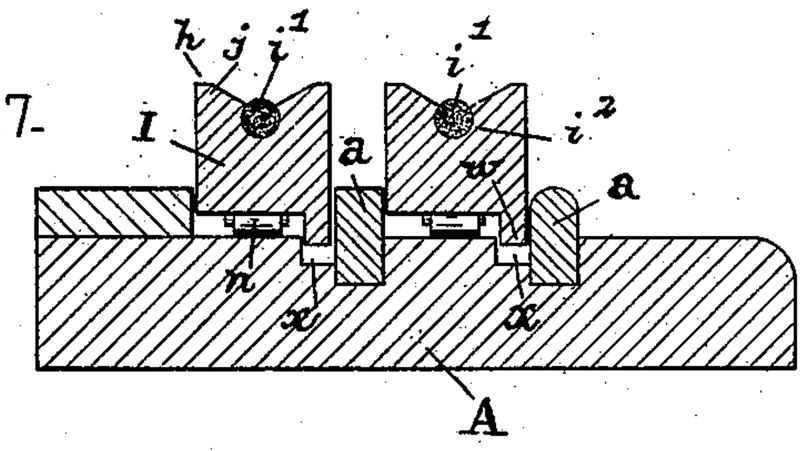


Fig. 8.

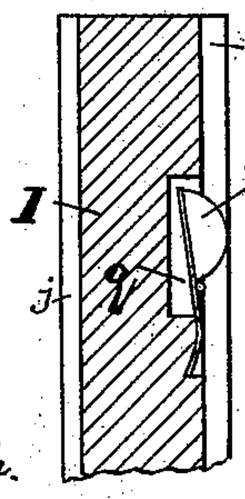


Fig. 9.

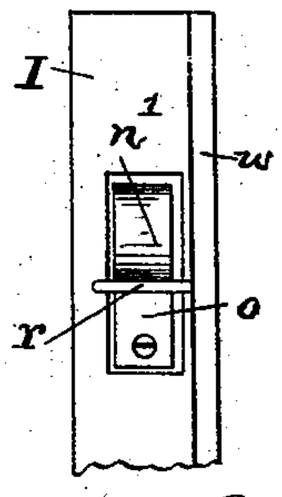
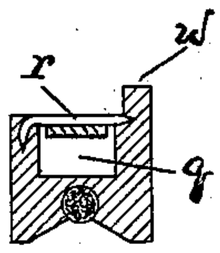


Fig. 4.



WITNESSES -

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FRANK CRAMBLITT, OF BALTIMORE, MARYLAND.

REVERSIBLE WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 603,478, dated May 3, 1898.

Application filed April 27, 1897. Serial No. 634,078. (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 that class of window-sashes which are hung on pivots attached to sliding strips at each side of the sash to permit of reversing the sash and also raising and lowering it.

The object of the invention is to provide certain improvements which are hereinafter first described and then claimed.

In the drawings, Figure 1 is a perspective view of one-half of a window-frame, partly broken, and sashes, the lower sash being tilted. Fig. 2 is a sectional view of part of one side of a sash and the vertically-sliding strip to which it is pivoted. Fig. 3 is a face view of the sliding strip. Fig. 4 is a cross-section of the same on the line 4 4 of Fig. 3. Fig. 5 is a cross-section of the side of the sash and the sliding strip, showing the improved joint. Fig. 6 is a sectional view, taken through the pivot, of the side of sash and sliding strip, the sash side being tilted to a position at right angles with respect to the strip. Fig. 7 is a horizontal section of one side of the window-frame and of the two sliding sash-strips at the same side. Figs. 8 and 9 are face and section views, respectively, of the sliding strip, showing a modification of the spring.

The letter A designates the window-frame, which may have at each side a box B, as usual, for sash-weights. So far as the present invention is concerned, however, the sash may be raised by means other than weights, such as the spring sash-lifter devices. The lower sash is designated D, and the upper sash D′.

Each sash has at its two sides central pivots *g*, attached to vertically-sliding strips, those for the lower sash being designated I. These sash-strips slide up and down between the usual guide-strips *a* on the window-frame A, and a sash-cord *e* is attached to each strip near its upper end. A bevel-joint is made between those faces of the sash and sliding strip which confront each other. This joint consists of two flat faces *h*, one at each outer side, in the same plane, a central face *i* on the sash intermediate of the said two outer faces and in a different plane, but parallel with said outer faces and a central elastic packing-strip *i′* on the sliding strip, and two inclined faces *j*, extending at either side of said central face to the outer faces. The inclined faces are at an angle with respect to the central face and outer faces. This form of joint produces a projecting center on the sash (see Fig. 5) and a corresponding depressed center with a packing-strip on the sliding strip.

The elastic strip *i′* is fitted in a groove i^2, made in the depressed center of the sliding strip and projects slightly therefrom, as seen in Fig. 7. This groove is undercut slightly in order that the slot-opening, from which the elastic strip *i′* projects, shall be smaller or more contracted than the internal cross-section or diameter of the undercut part. When the elastic strip is forced through the contracted slot-opening into this undercut groove, it expands and the shape of the groove then confines it.

A slight depression extends along the central face *i* on the sash. This depression is in contact with the elastic packing-strip *i′*. This construction makes a wind-proof and rain-proof joint, and at the same time, by reason of its inclined faces *j*, it is a form of joint that facilitates the turning of the sash on its pivot. Fig. 6 shows the position the parts take when the sash is tilted.

The pivot-bolt *g* is in suitable bushings *k* on the sash and strip. The bushings prevent wear on the sash of the pivot-bolt. The outer end of the pivot-bolt is attached to a bowed plate-spring *l*, which occupies a recess *m* in the outer face of the sliding strip I. Normally when the joint between the sash and strip is closed, as in Fig. 2, this spring by bowing outward serves to draw the sliding strip, with its elastic packing *i′*, close against the sash; but when the sash is tilted, as in Fig. 6, the bowed spring yields and assumes a flattened position. The outer face of each sliding strip has two rollers *n*, one near the top and the other near the bottom. Each roller is carried on the free end of the plate-spring *o*, the other end of which is secured by a screw *p* to the strip. Normally the roller end of the spring projects outward. At the

back of the free end of each roller-spring the strip has a recess *q* to receive the free end when the latter is depressed, which depression takes place whenever the sash D is tilted, as in Fig. 6, thereby causing the inclined face *j* of the sash to ride up on the inclined face of the strip. Thus the two strips I on the opposite sides of the sash are spread away from each other.

To keep the roller-springs partly depressed and therefore always under some tension, I have provided a staple *r*, which straddles the spring *o* and also the recess *q*. The staple is right-angled in shape. One prong takes into the wood at one side of the recess and the other into the tongue *w*. The center of the staple, as seen in Fig. 4, bears on the spring *o*.

Each sash-strip has on its face side a tongue *w*, extending vertically along its entire length. This tongue is on the outer vertical edge of the strip, in position to slide in contact with one of the guide-strips *a*. The window-frame A adjoining each guide-strip has a vertical groove *x*, in which the said tongue *w* has position. When a tilting sash is in its normal vertical position, the tongue *w* on the strip will have the position in the groove as shown in Fig. 7—that is, only partially entered—and thus will prevent drafts of air through the passage or crevice between the window-frame A and sliding strip I. When a sash is tilted, the two side strips I will be spread away from the sash, and the tongue *w* will then be pressed fully into the groove *x;* but at all times the tongue will be more or less in the groove.

It is not essential that the plate-springs on the outer face of the sliding strips should carry rollers. Instead of a roller each spring may carry on its free end a rounded boss *n'*, (see Figs. 8 and 9,) said rounded or convex surface serving to slide along in contact with the window-frame when the sash is being raised or lowered.

In order to prevent the sash from being tilted by an unauthorized person from the outside at the time the sash is down, I have provided the bottom rail *s* of the sash (see Fig. 2) with one or more sockets *t*, (I prefer to have two,) and on the upper face of the sill *u* I affix a stud *v* for each socket in such position that the stud will enter the socket when the sash is fully down. These studs coact with the tilting sash and serve to prevent the closed sash from being tilted. Before the sash can be tilted it will be necessary to first raise it to release it from the studs. If preferred, the studs may be on the sash and the sockets in the sill. Of course the meeting-rails of the two sashes may have locks of any of the well-known forms to prevent the lower sash from being raised or the upper one from being lowered.

From this description the operation of the improved tilting sash will be readily understood.

Having thus described my invention, what I claim is—

1. In a window, the combination of the window-frame, A, having the usual guide-strips and a vertical groove, *x;* a sash; a vertical strip at opposite sides of the sash and sliding in said guides, the sash being pivoted to said strips, and the latter provided with a tongue, *w*, extending vertically—said tongue having position in the said window-frame groove; and springs on the face side of said sliding strips to traverse the window-frame, as set forth.

2. In a window, the combination of the window-frame, A, having the usual guide-strips and a vertical groove, *x;* a sash; a vertical strip at opposite sides of the sash and sliding in said guides, and said strips provided with a tongue extending vertically, said tongue having position in the said vertical groove; an elastic packing-strip in the joint between the sash and sliding strips; a bowed plate-spring in a recess on the outer face of the strip; and a pivot-bolt at each side connecting the sash and strip and the end of said bolt attached to said bowed spring, as set forth.

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

FRANK CRAMBLITT.

Witnesses:
CHAPIN A. FERGUSON,
CHAS. B. MANN.