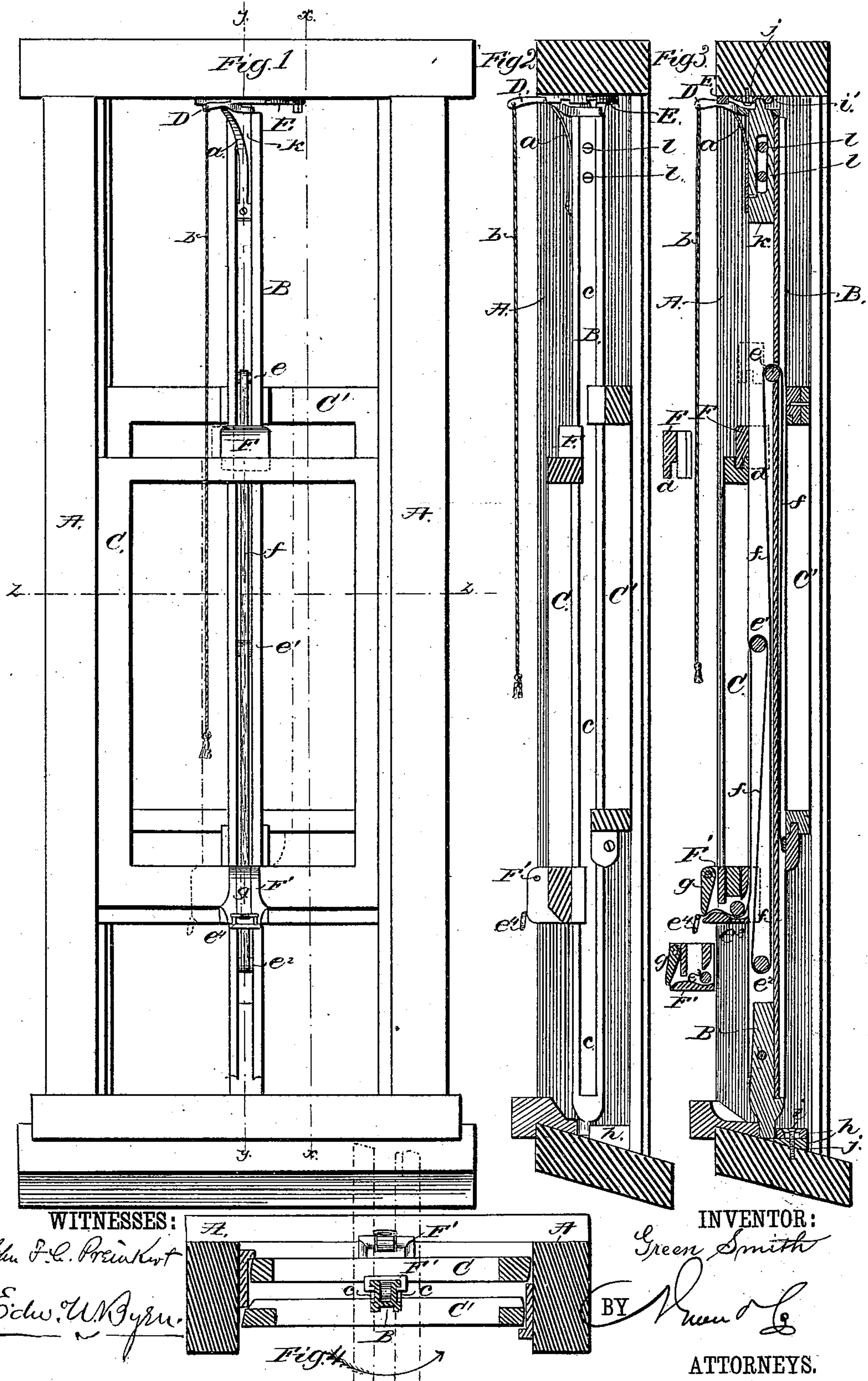


G. SMITH.
Window.

Patented Nov. 30, 1880.



UNITED STATES PATENT OFFICE.

GREEN SMITH, OF COAL VALLEY, WEST VIRGINIA.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 235,035, dated November 30, 1880.

Application filed June 15, 1880. (No model.)

To all whom it may concern:

Be it known that I, GREEN SMITH, of Coal Valley, in the county of Fayette and State of West Virginia, have invented a new and useful Improvement in Windows; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—
10 Figure 1 is a front view of the window with the sashes opened and balancing each other. Fig. 2 is a vertical section through the line *xx* of Fig. 1. Fig. 3 is a vertical section through the line *yy* of Fig. 1, and Fig. 4 is a cross-section through the line *zz* of Fig. 1.

My invention relates to certain improvements in windows designed to secure the benefits of ventilation through the entire area of the window, to permit the window-panes to be washed on both sides without taking out the sash or going outside of the window, and to secure the balancing of the sashes, the independent movement of either sash, or the entire removal of the sashes, as may be desired.
25 The improvements consist, mainly, in connecting the sashes to a central vertical bar, over which they slide, and arranging the said bar with pivots or bearings at the top and bottom of the window-frame in connection with
30 locking devices, so that the bar may be turned axially to swing both sashes around into an edgewise position at right angles to their normal position to open the entire window.

It also consists in arranging with this axially-moving bar pulleys and bands or cords, whereby the weight of one sash is made to balance the other; also, further, in the peculiar means for fitting the central bar and its appendages in place in the window-frame, and in
40 the means for detachably securing the sashes to said bar, as hereinafter fully described.

In the drawings, A represents the window-frame. This frame is not substantially different from the ordinary window-frame, so that
45 my invention is adapted to any of the forms already in use with but slight alteration. It is necessary, however, that the window-frame shall have upon one side no bead or strip to oppose the inward lateral movement of the
50 sashes, and upon the other side no bead or strip to oppose the outward lateral movement

of the sashes when the latter swing about a vertical center, as shown in Fig. 4.

B is the central bar, to which the sashes C C' are connected, and upon which they slide. 55 This bar is provided with journals at top and bottom, which rest in bearings on the sill and the top section of the window-frame, so as to permit this bar and the sashes which it carries to be swung around edgewise or at right angles 60 to their normal position. To lock this bar and the sashes in its opened or closed position a latch, D, is pressed upwardly by a spring, *a*, and is made to engage with notches in a curved bar, E, fastened to the top of the window- 65 frame, and from this latch D a cord, *b*, terminating in a tassel, hangs down to a position within convenient reach, so that by pulling upon the same the latch may be drawn downwardly and out of its retaining-notch, and the 70 sashes then swung around on the central bar.

For attaching the sashes to the bar with a sliding and a detachable connection the following means are employed: The central bar is grooved at *cc* on its opposite sides, (see 75 Figs. 2 and 4,) and into these grooves slide the tongues of an upper block, F, and lower block, F'. This upper block, F, has also at its lower edge a tongue, *d*, Fig. 3, which passes down into a mortise in the top of the lower 80 sash, while the lower block has a recess, in which rests the lower notched edge of the sash. Now, these blocks being pinned to the sash, it will be seen that the sash and blocks move together over the bar B and are held thereto 85 by the guide-grooves *cc*. To permit the removal of the sash from the bar it is only necessary to lift the top block, F, so that its tongue *d* leaves the mortise in the sash, as shown in dotted lines in Fig. 3, and the sash may then 90 be lifted out of the notch in the lower block, leaving the blocks still connected to the central bar.

For balancing the sashes each with the weight of the other, and still allowing inde- 95 pendent movement of the same, the central bar, B, is recessed on its two sides at right angles to the sides carrying the guide-grooves *c*, and in the deeper recess on one side are arranged three rollers or pulleys, Figs. 1 and 3— 100 one, *e*, near the top, another, *e'*, at about the middle, and another, *e''*, near the bottom—over

which is arranged a cord or strap, *f*. This strap is attached at one end to the lower edge of the top sash, thence passes up on one side of the bar B to the top roller, then down over this roller into the other recess of the bar, and thence down to and around the lowest roller, then up around the middle roller and down to the bottom edge of the lower sash. By this arrangement the weight of one sash is made to balance the other for all positions of the same.

To permit the independent movement of the sashes the lower end of the strap *f* is not attached fixedly to the lower edge of the lower sash, but passes around a roller, *e*³, contained within the lower block, *F'*, and terminates in a ring, *e*⁴. Now, if it be desired to raise the lower sash simply the band *f* is pulled out by ring *e*⁴, which causes the lower sash to rise by reason of the pressure on roller *e*³. When the lower sash has been thus raised it is held in this position by a cam or dog, *g*, in the lower block, *F'*, which is made to bind or pinch against said strap to prevent it from slipping back.

To facilitate the fitting of the rotary bar B in the window, bearings *i* *i'* are provided at the top and bottom, the top one of which bearings is screwed directly to the top of the window-frame, and the bottom one of which bearings slides in a groove in the top of a tapering block, *h*, resting upon the incline of the window-sill. I may move these bearings *i* in or out by means of slots and set-screws *j*, so that the position of the journals of the central bar may be varied to throw either the top or bottom of the bar farther inward or outward to cause the sashes to better fit the window-frame.

To allow for slight variation in the depth of windows the upper journal of the bar B is made on the end of an adjustable or extensible piece, *k*, which is slotted and clamped between the upper ends of the bar B by set-screws *l* *l*, which pass through the slots in the

said piece. Now, if the bar B be not quite long enough, the piece is set farther out, or vice versa.

Having thus described my invention, what I claim as new is—

1. The combination, with a window-frame, of a vertical bar arranged centrally therein to turn about its axis, and carrying sashes sliding freely thereon, substantially as and for the purpose described.

2. The combination, with a window-frame, of a vertical bar arranged centrally therein to turn about its axis, a set of sashes applied to said bar, and a set of sliding blocks for detachably securing the sashes to the bar, as described.

3. The combination of the central and rotary bar, B, carrying the window-sashes, made recessed, and provided with friction-rollers, and a cord or strap passing over said rollers and connected at its ends to the said sashes, as described.

4. The combination of the rotary central bar, B, carrying the sashes, and provided with rollers *e* *e'* *e*², the strap *f*, attached to the upper sash, and the lower block, *F'*, having a roller therein, and a cam or dog for holding the strap for the independent adjustment of the sashes, as set forth.

5. The combination, with the rotary central shaft, B, carrying the sashes, of a spring-latch arranged at the top of the bar and a notched bar fixed to the top of the window-frame to lock the sashes in position, as described.

6. The combination, with a window-frame, of a central rotary bar, B, carrying the window-sashes, and blocks arranged at the top and bottom of the frame, with adjustable bearings for the bar, as set forth.

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Witnesses:

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