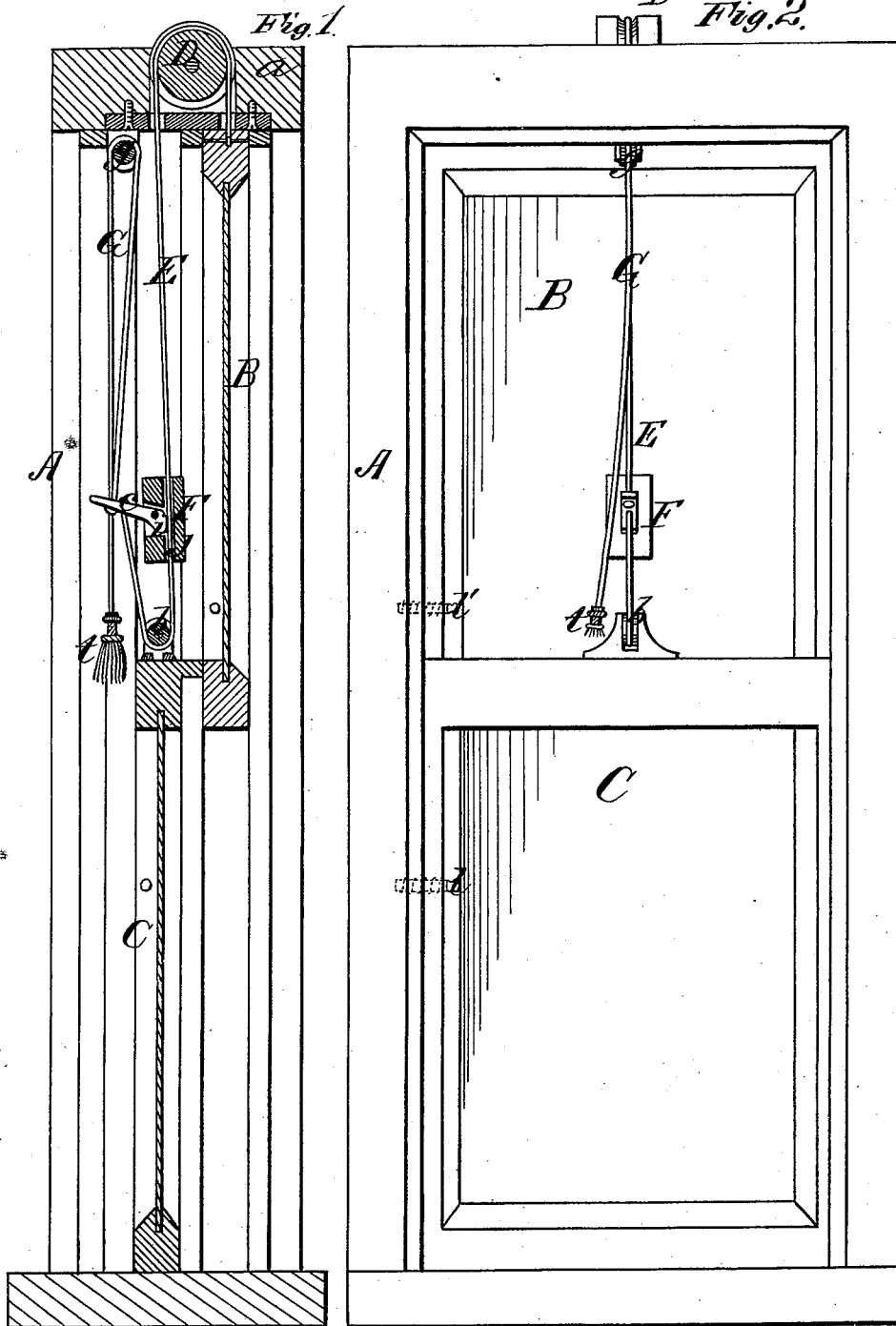


E. JOHNSON.  
Sash-Balances.

No. 164,003.

Patented June 1, 1875.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

ELIAS JOHNSON, OF WAUSEON, OHIO.

## IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **164,003**, dated June 1, 1875; application filed May 8, 1875.

*To all whom it may concern:*

Be it known that I, ELIAS JOHNSON, of Wauseon, in the county of Fulton and State of Ohio, have invented a new and valuable Improvement in Sash-Balances; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical section of my sash-balance, and Fig. 2 is a front view of the same.

This invention has relation to improvements in balanced sashes, wherein the upper and lower sashes, being of equal weight, are suspended from a pulley-wheel at the top of the frame, in such a manner that when the lower sash is raised the upper one will be lowered; and the nature of the invention consists in a traveling clamp applied upon the balance-cord, whereby each sash is adapted to be raised or lowered independently of the other, and to be adjusted in any degree of elevation or depression in relation to the other, as will be hereinafter more fully explained and claimed.

In the annexed drawings, A designates a window-frame of the usual well-known construction, within which are applied a pair of sashes, B C, the former letter designating the upper, and the latter the lower, one. D represents a grooved pulley-wheel, having its bearings in, and arranged transverse to, the lintel *a*, over which is passed a balance-cord, E, one end of which is rigidly attached to the top rail of the upper sash, the other passing down through a traveling clamp, F, to a grooved pulley-wheel, *b*, mounted in suitable bearings on the meeting-rail of the lower sash. Cord E passes under pulley-wheel *b*, extending thence upward to a cam-lever, *c*, to the power-arm of which it is then rigidly secured. This lever-cam is pivoted in a recess of clamp F, and cord E passes between the cam-shaped end *i* of the said lever and the closed rear end of clamp-block *j*, so that when the lower sash is raised, thus lowering the upper sash, the weight thereof will actuate the cam-lever,

causing it to bite upon the cord and hold it against slipping through the clamp-block.

By this means the two sashes are accurately balanced, and when one is raised the other will be lowered.

With a view to providing a means whereby either sash may be operated independently of the other, a bell-cord, G, rigidly secured to the power-arm of lever-cam *c*, is passed over a grooved pulley-wheel, *g*, at the upper part of the window-frame, directly over the meeting-rail of the lower sash, which cord extends downward within reach of the operator, its lower end being provided with a tassel, *t*, for convenience of manipulation.

To raise the lower sash a catch, *l*, whereby it is secured to the jamb of the frame, is operated to release it therefrom. A smart pull is then given to bell-cord G, thus throwing the power-arm of lever-cam *c* up, and relieving cord E of its bite, when traveling clamp F will be raised through the medium of cord G and pulley *g*, thus drawing cord E through pulley *b* on the meeting-rail of the lower sash, causing it to be raised, the upper sash remaining stationary, owing to the fact that its catch *l* remains engaged with the frame.

To lower the upper sash, disengage its catch *l* from the frame, and draw down on cord G, thus relieving cord E of the bite of lever-cam *c*, when its weight will cause the sash to descend. The moment the said sash has descended to the desired point, release cord G; lever-cam *c* will immediately bite upon cord E, and preserve the adjustment thus obtained.

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

The combination of a traveling clamp, F, with the sashes B C, balanced by means of a cord, E, passing over a pulley, D, at the top of the window-frame, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ELIAS JOHNSON.

Witnesses:

GEORGE E. UPHAM,  
JOHN B. CORLISS.