S. J. KEIM.

Sash-Balance.

No. 220,976. Patented Oct. 28, 1879.

Fig. 2.

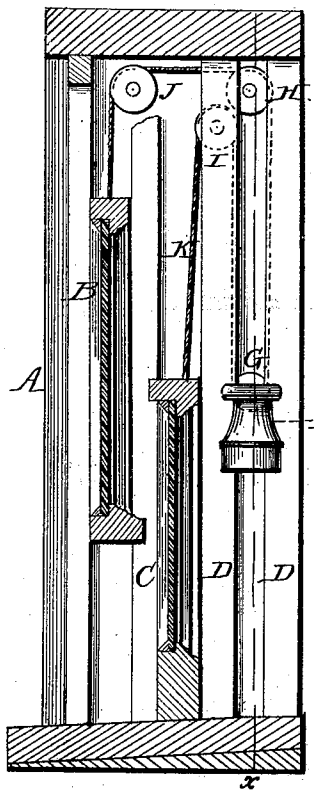


Fig. 1.

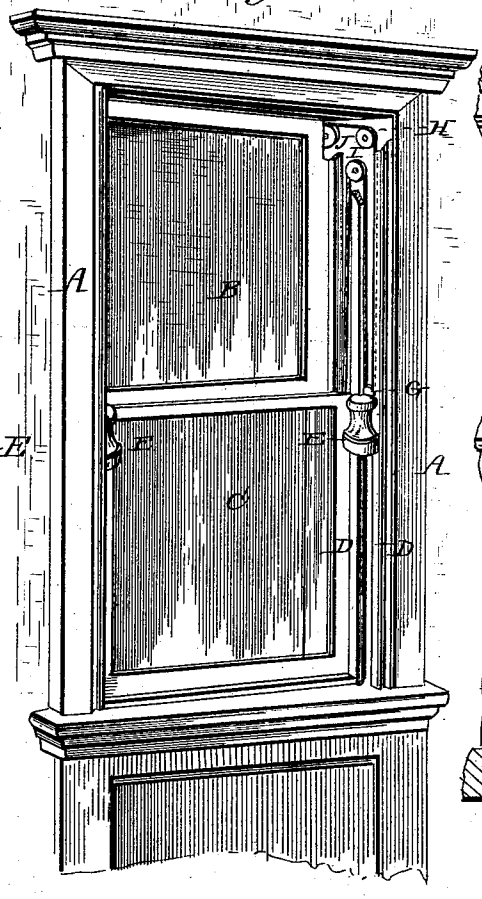


Fig. 3.

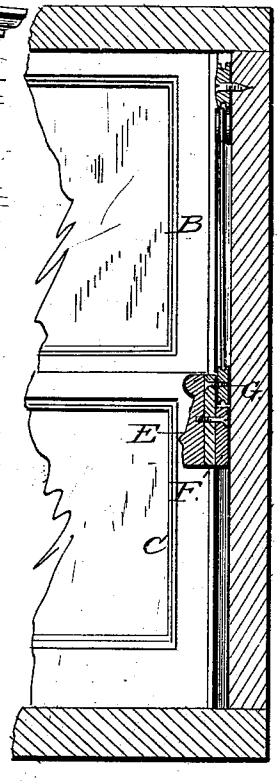
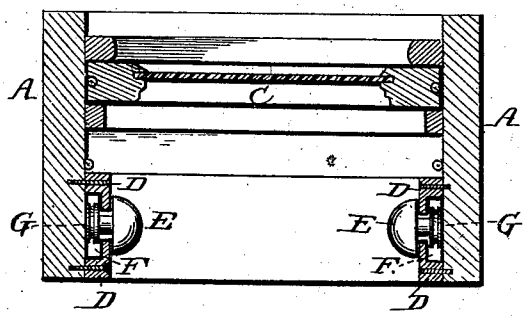


Fig. 4.



Witnesses;

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UNITED STATES PATENT OFFICE.

SIMON J. KEIM, OF CATASAUQUA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO WILLIAM YOUNGER, OF SAME PLACE.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **220,976**, dated October 28, 1879; application filed August 13, 1879.

To all whom it may concern:

Be it known that I, SIMON J. KEIM, of Catasauqua, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Sash-Balances; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of a window-frame to which my improvement has been applied. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a sectional view on the line *x x*, Fig. 2, and Fig. 4 is a horizontal sectional view.

Corresponding parts in the several figures are denoted by like letters of reference.

This invention relates to sash-balances; and it consists in certain improvements in the construction of the same, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, A represents the window-frame; B, the upper, and C the lower, sash. Upon the inside of the window-frame are secured beveled strips D D, forming guides for the weights E E, which are provided with grooves F F, by which they slide upon the strips or guides D.

The weights may be of any desired shape, and should be of such size and weight that the two weights will balance both sashes.

Upon the inner sides of the weights, and sliding between the guides D, are journaled pulleys G. Between the guides D, at the top of the frame, are journaled similar pulleys H H. Just below the latter, and approximately above the lower sash, a third set of pulleys, I I, are journaled, and a fourth set, J J, have their bearings in the frame at the sides of the upper sash.

One end of the sash-cord K is attached to the lower sash. From thence it passes over the pulley I, down under pulley G, up over pulley H, from thence over pulley J, below which it is attached to the upper sash. By this arrangement it will be seen that the weights are supported upon the sash-cords, which latter connect the sashes, which are, therefore, equally balanced by the weights.

As before stated, the sash-weights may be of any desired shape. Modifications may also be made in the construction and arrangement of the guides without changing the spirit of my invention. Some kind of guides are, however, absolutely necessary to steady the motion of the weights when they are raised or lowered by operating the sashes.

It will be observed that by the construction and arrangement herein shown and specified my improvement may be applied to ordinary window-frames and unbalanced sashes already in position, no change in the construction of either being made necessary by my improvement.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a sash-balance constructed substantially as described, the combination, with the beveled strips D D, secured upon the inside of the window-frame, of the weights E, having grooves F, by which they slide between said beveled strips, as set forth.

2. The combination, in a sash-balance, of the following elements: the window-frame A, beveled strips D D, secured upon the inside of said frame, weights E, having grooves F and pulleys G, sashes B C, pulleys H I J, and cords K, all arranged and operating substantially as and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

SIMON J. KEIM.

Witnesses:

R. CLAY HAMERSLY,

WM. HAMERSLY.