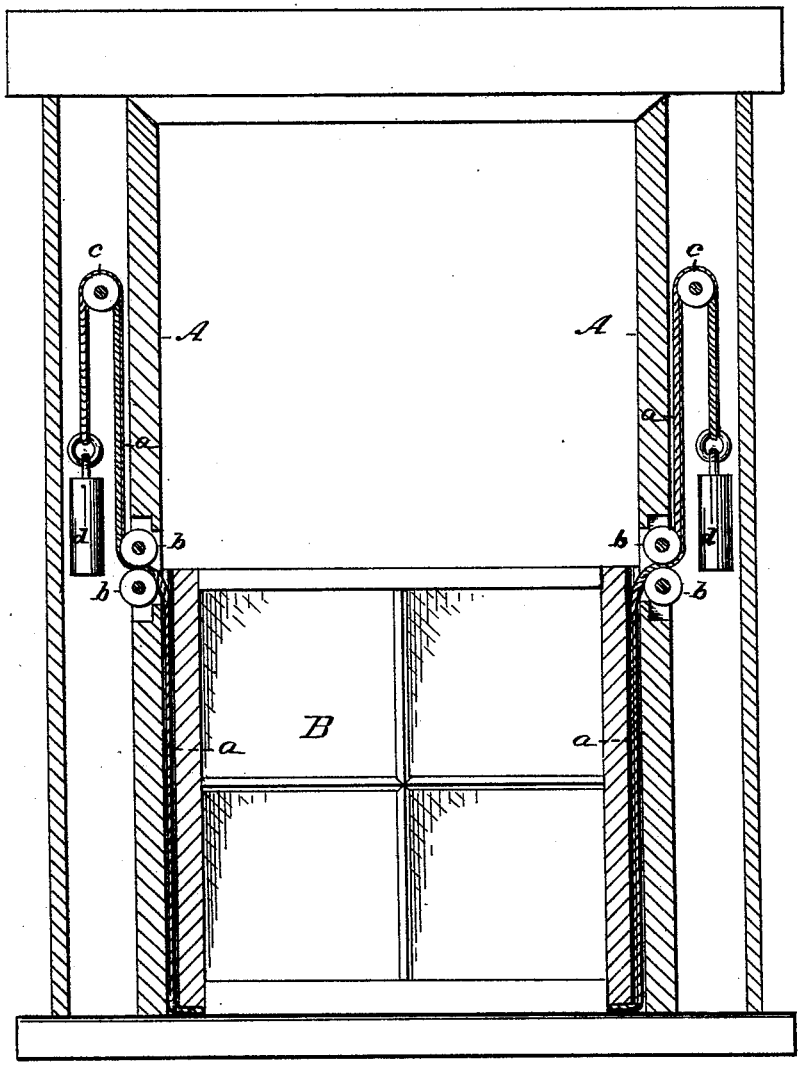
W. WOODWARD.

SASH-BALANCE.

No. 182,981. Patented Oct. 3, 1876.



WITNESSES:

Solon C. Kemon

Chas. A. Pettit

INVENTOR:

Wm. Woodward

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM WOODWARD, OF NASHVILLE, TENNESSEE.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **182,981**, dated October 3, 1876; application filed September 4, 1876.

To all whom it may concern:

Be it known that I, WILLIAM WOODWARD, of Nashville, in the county of Davidson and State of Tennessee, have invented a new and Improved Sash-Balance; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a sectional elevation.

The object of my invention is to provide a simple and efficient form of sash-balance in which the cords carrying the suspended weights shall be concealed from sight, and yet arranged so as to permit the raising or lowering of each sash its entire length. To this end it consists in grooving the sash upon its edges, and attaching the cord to the same at the bottom, then passing it between two pulleys arranged about the middle of the window-frame, and thence around a third pulley, located above the center of the window. The two pulleys at the middle, and the attachment of the cord to the bottom of the sash, conceals the cord, while the upper pulley gives a greater range of movement to the sash, and thus permits it to be moved its entire length.

In the accompanying drawing, A represents the window-frame, and B the sash, of which but one is shown, which is sufficient for purposes of illustration, as the other sash is arranged in a similar manner. The sash is grooved upon its edges, to receive the cord *a*, which latter is attached to the sash at the bottom. This cord passes upwardly in the groove of the sash, and between the two pulleys *b b*, arranged in the side frames of the window, about the middle. It then passes into the lateral chambers of the window-frame upwardly and around a third pulley, *c*, and is attached to the balancing-weight *d*.

By locating the pulleys *b b* at the middle of the frame, grooving the edges of the sash, and attaching the cords to the bottom thereof, it will be seen that the cord is entirely concealed from sight, and protected from the rotting effects of the weather; but this arrangement alone would secure only an imperfect result, for the reason that the range of movement of the sash would be limited on account of the length of the weight and the diameters of the pulleys, which would prevent the sash from ever being completely raised or lowered. This defect I have remedied by locating a third pulley, *c*, in the lateral chambers high enough to give sufficient movement to the weight to permit the complete raising or lowering of the sash.

I am aware of the Patents No. 86,792, T. O. Wilson, February 4, 1869, and No. 13,124, D. N. Drunzack, June 26, 1855, for similar devices; but they differ from mine in essential particulars. I therefore disclaim them, and confine my invention to the particular arrangement shown and described.

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

The combination, with the sash, having grooved edges, of the two pulleys *b b*, located in the middle of the frame, the pulley *c*, located above the same, and the cord *a*, having weight *d* attached and passing around pulley *c*, between pulleys *b b*, and attached to the bottom of the sash, substantially as and for the purpose described.

WILLIAM WOODWARD.

Witnesses:
L. P. HAGAN,
JAS. CREIGHTON.