

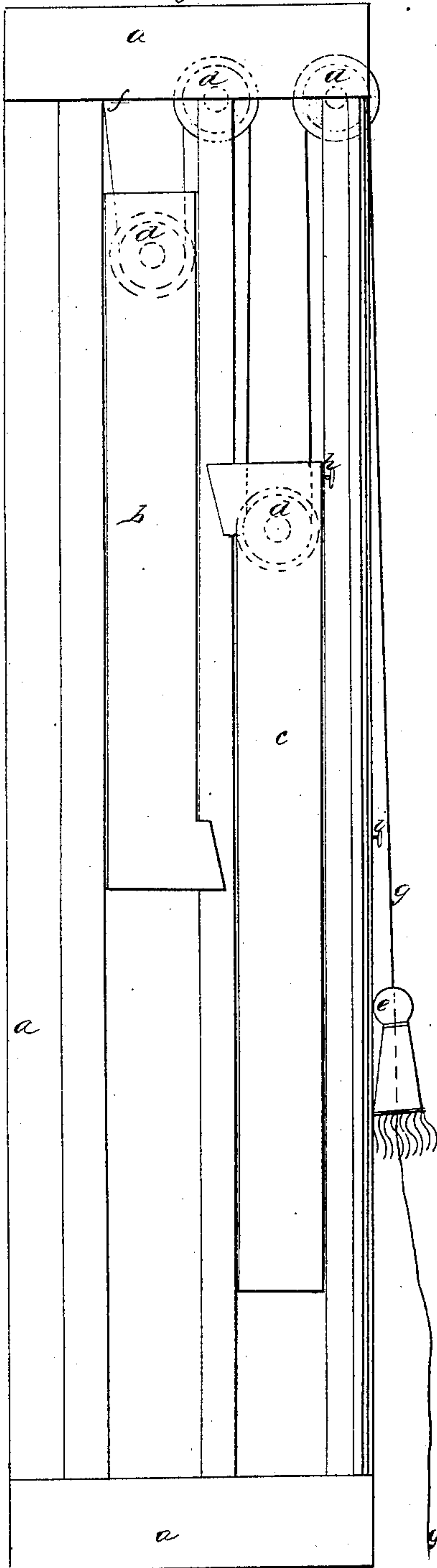
J. R. Payson,

Sash Balance.

N^o 18,703.

Patented Nov 24, 1857.

Fig 1



Witnesses
J. J. Hedges
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UNITED STATES PATENT OFFICE.

JOSEPH R. PAYSON, OF COVINGTON, KENTUCKY.

ARRANGEMENT IN SASH-BALANCES.

Specification of Letters Patent No. 18,703, dated November 24, 1857.

To all whom it may concern:

Be it known that I, JOSEPH R. PAYSON, of the city of Covington, county of Kenton, and State of Kentucky, have invented a new and Improved Mode of Balancing and Operating Window-Sash, which I designate as the "Compensating Sash-Balance;" and I do hereby declare the following to be a full and exact description of the same, reference being had, as part hereof, to the annexed drawings and the letters of reference marked thereon.

The nature of my invention consists in the arrangement of the cords, pulleys and balanced sashes combined with and operated by a weight or weights equal to the aggregate weight of both sashes, the weight or weights being arranged upon the inside of the window, without box or boxes. The reduction of the weight to one fourth admits of its being applied and rendered ornamental in the form of ornamental weights or weighted tassels of one eighth each, upon either side of the window frame. By this arrangement both sash are perfectly counterbalanced not only in their combined movements but also in their separate movements. The arrangement also produces a greater variety of useful movements than has before been combined in one mode of hanging, viz: the separate movement of either sash in counterbalance, and also the simultaneous movement of both sash in counterbalance, either equal or unequal distances, at will. It also affords a novelty in moving either sash separately, by simply changing the position of the weight by means of the cord, without touching the sash. It also produces an article before unknown to the trade, in that it is an economical and desirable substitute, in a majority of instances, for the boxed frames with full weights, and is adapted to hanging old windows and new, without change in the common style of plain frame and without injury to the finish. It saves the entire expense of boxing the frame and three fourths of the common full weights, while the expense of tasseling the small weights is comparatively trifling, and it is therefore a cheaper article to the public. The average extra cost of box frames over plain frames is nearly if not quite two dollars per window.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The annexed drawing represents the sec-

tional elevation of a window frame and sash with my invention affixed:—*a, a*, being the window frame, *b, c*, the sashes, *d, d, d, d*, the pulleys, *e*, the open weight and *g* the sash cord. One end of cord *g*, is fastened to the frame at *f*. Thence it passes down and around the pulley in the edge of upper sash *b*, thence up and over the pulley in the center of the parting strip of frame *a, a*, thence downward and around the pulley in the edge of lower sash *c*, thence returning over a second pulley at the top and near the inner edge of frame *a, a*, it passes down the inner edge of frame and connects with the open weight (*e*.)

The compensating weight *e*, is best applied in the form of tassels. If one only is used, it must be one fourth, or thereabout, of the weight of both sash, and if two are used, one upon each side of the sash and frame, which is best, they must each be one eighth, or thereabout, of the weight of both sashes, in which last case two cords and eight pulleys are required. In case of two sash of ten pounds each, one weight or tassel of five pounds or two of two and a half pounds each are used. If the weight is however a trifle more or a trifle less than the one fourth of the weight of both sash, it is not essential. When both sash are in position closed, the weight or weights must hang midway of the frame and against or opposite the meeting rail of the sash.

It will be observed that when both of the sash are suspended in the frame, one half of the weight of upper sash *b*, is sustained upon the cord at *f*, and the other half is sustained over the center pulley of the frame by one half of the weight of lower sash *c*, while the remaining half of the lower sash is sustained or counter-balanced by the fourth weight *e*. It is evident therefore that when both sash are in position, the weight hanging midway of the frame, the upper sash can be moved separately one half its length, in counterbalance, either by moving the weight upward to the top of the frame or by steadying the lower sash with one hand and pulling downward upon the upper, as with the common balanced sash, and that it can be returned again to its place by pushing upward upon it in the ordinary way, the weight returning downward to the center of the frame. It is also evident that moving the weight downward will cause the lower sash to rise separately

in counterbalance, and that in the usual elevation of the window frame from the floor it can thus be raised separately nearly or quite its entire length, and this by a single movement upon the cord sending the weight below the window stool, and further that when thus elevated the lower sash can be closed also by single movement in pulling downward upon it as with the counter balanced sash, the weights returning upward to their place. These two separate movements embrace the substantial advantages of the counter balanced sashes with full weights in boxes. In addition thereto my arrangement or combination produces the very desirable simultaneous movement of both sashes unequal distances, in perfect counterbalance, giving two thirds of the opening at the bottom and one third at the top of the window. In this movement the action of the weight causes and compensates for the more rapid movement of the lower sash, the weight moving an equal distance with it. This movement is produced by taking hold of the lower sash alone and raising it in the usual way. Closing the lower sash in same manner will cause the upper sash to rise to its place without touching it. Again if on raising the lower sash with one hand the weight is held with the other both sash will move simultaneously equal distances as in the common sash balance.

I am aware that the simultaneous unequal movement of both sash is found by itself alone in the sash balance of Alfred T. Clark, patented May 23, 1854, but it is thus produced with two pulleys only and without the use of a weight, while the equal balance of the sash is not preserved, as in my combination.

I am aware that a somewhat similar arrangement of the cord, pulleys and balanced sashes is found in the patent of Robert Marquis, dated August 22, 1854, but is thus only claimed as "the single cord which, passing around pulleys at the midwidths of the sashes, is operated by a winch in the jamb." My arrangement on the contrary it will be seen, while it is not confined to the single cord and is not applied to the mid-

widths of the sashes, is combined and operated conjointly with a weight instead of a winch, and differs therefore substantially from his, not only in the mechanical combination, but also in the mode of operation, and in the character of the movement of the sashes themselves, viz: His sustaining and moving power is the fixed leverage of a winch and is not active or self-acting, while mine is the continuous moving leverage of a weight which is active or self-acting. It is this difference of mechanical combination and action which produces in mine, the simultaneous unequal movement of both sashes, and also the separate movement of each sash in counterbalance, and by taking hold of the sash itself as in the common balanced sashes—neither of which results are produced by Marquis's arrangement. Further the separate movements of his sash can only be obtained by a series of turnings at the handle of the winch, while mine are produced more speedily and conveniently by single movements of the sash or cord.

I do not claim any of the parts or arrangements in themselves alone, separately considered. But

I do claim—

Combining the arrangement of cord *g*, and pulleys *d*, *d*, *d*, *d*, attached to the sides of balanced sashes *b*, *c*, and frame *a*, as shown, with the arrangement of the open weight or weighted tassel *e*, substantially as shown, by which means the sashes can be diversely operated in counterbalance with the weight, conjointly and separately as specified, and also by which means is furnished to the trade and the public a new economical and useful mode of counterbalancing sashes with one fourth of the usual weight, and in the common plain frame without boxes, after the building is finished, without changes in the frame or injury to the finish.

In testimony whereof I have hereunto set my hand and seal this twenty-third day of September eighteen hundred and fifty-seven.

J. R. PAYSON. [L. s.]

Witnesses:

W. L. MORTON,
M. HOLLINGSHEAD.