(No Model.)

C. E. BOGLE.

SASH BALANCE.

No. 261,510. Patented July 18, 1882.

Fig. 1.

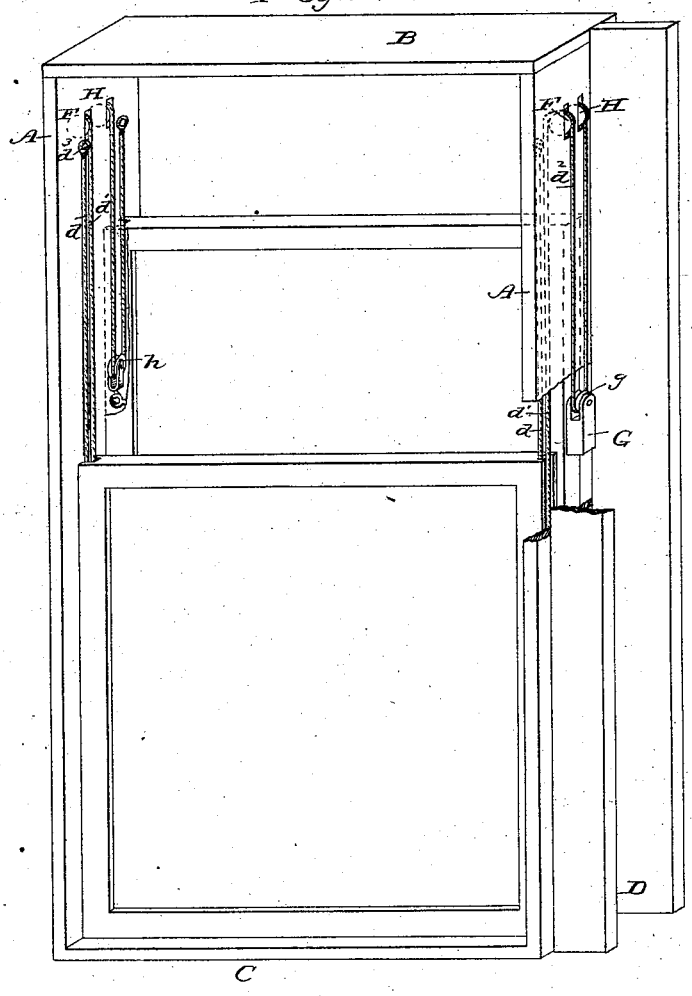


Fig. 2.

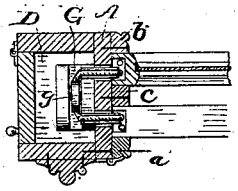
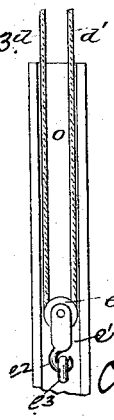


Fig. 3.



Witnesses:
N. N. Lowe
J. S. Barker.

Inventor:
Charles E Bogle
by Doubleday & Bliss
attys.

UNITED STATES PATENT OFFICE

CHARLES E. BOGLE, OF MILTON, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO HAMLIN F. BILLMEYER, OF SAME PLACE.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 261,510, dated July 18, 1882.

Application filed May 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BOGLE, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Sash-Balances, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a perspective view, showing a portion of a window and also part of one of the weight-boxes, the strips for holding the sash in proper position not being shown. Fig. 2 is a sectional view of one of the weight-chambers just above the stationary pulleys in the casing. Fig. 3 is a side elevation of one of the sashes, showing the method of attaching the pulley thereto.

In the drawings the casing of the window is represented as being formed of substantially the usual parts—to wit, the vertical portions A, the top B, and bottom C. In the casing ways are provided for the lower and the upper sash, said ways being formed by the front strip, *a*, the rear strip, *b*, and an intermediate strip, *c*, these strips being arranged to leave grooves or ways between them, as shown in section, Fig. 2.

Heretofore usually, when single weights have been used at the side for both sashes, they have been arranged in such a way as to necessitate the widening of the casing, as the weight was not hung directly by the sides, but outside of the plane, of the sashes. In my construction the parts are more compactly arranged, the weight being situated within the space occupied by the common window-weight by the side of the sashes.

I double the cord or chain which is connected to the window-sash and connect it thereto by means of a pulley, *e*, carried by the sash. The cord or chain is represented by *d d'*, the part *d* being fastened at its end to the casing. The cord or chain passes from the point of fastening down around the pulley *e*, and thence upward to the stationary pulley F, this strand or portion of the cord or chain being represented by *d'*. Inasmuch as the cord or chain is thus doubled and applied to the sash by means of a pulley, there will not be required by any means the amount of weight to counterbalance the sash that is now required when a direct pull is exerted upon the sash through a single cord or chain.

G represents the balancing-weight, situated in the weight compartment or box D, where it is connected to that portion or strand of the cord or chain inside of the stationary pulley F. Of course, if this weight G were fastened to the cord or chain at any one point, it would be necessary that it should travel through twice the ordinary distance to perform the usual amount of work of the sash-weight; but to obviate these inconveniences I double the necessary weight and attach it loosely to the strands d^2 of the cords from both the lower and the upper sash—that is to say, I employ on each side of the window a continuous chain or rope extending in the manner described from the point of fastening, d^3, downward under the pulley *e*, thence upward to the pulley F, thence downward through the weight G, or under the pulley *g*, carried thereby, thence upward to the stationary pulley H of the upper sash, thence downward under a pulley, *h*, carried by said sash, and from there to a fastening-point, *h'*, for the other end of the rope or chain. It will be seen that a single weight is thus employed to balance both the lower and the upper sash.

In order to have the weight situated directly by the sides of the sash, and not in front, as has been customary in the manner followed when using single weights in some cases heretofore, I arrange the stationary pulleys at right angles to the movable pulleys on the sash, so that the cord can be carried up and down as directly as possible along the sides of the sashes.

Preferably the pulleys *e* are mounted in long slots or grooves *o* formed in the edges of the sash, the pulleys having removable blocks *e'*. These blocks are connected to the sash by means of hooks e^2 and eyes e^3. In the drawings the hooks e^2 are shown as being carried by the blocks and the eyes e^3 as being secured to the sash in the slots *o*.

The holding-strips *a*, which keep the sash in position, are hinged to the casing, as shown in Fig. 2, so that they can be readily swung out of place to permit the sash to be readily withdrawn from their ways. After a sash has been swung out of its way or groove the blocks *e'* and eyes e^3 can be instantly disengaged. When the sash is fastened and supported in this way it can be removed easily and quickly to permit cleaning. Under some circumstances it will not be necessary to have the holding-strips on both sides of the sash removable, as the sash can be so constructed and arranged that the removal of the strips upon one side shall permit the sash to swing out.

I am aware of the Patents No. 18,703, to J. R. Payson, November 24, 1857, and No. 243, (additional improvement,) to T. F. Hall, 1859; and I do not claim broadly window-sashes connected together by means of a single rope passing over pulleys on the sashes and intermediate stationary pulleys in the casing; but my construction and arrangement of parts are much superior to those shown in said patents. It can be applied to any of the windows of the ordinary construction without necessitating any material change whatever. By arranging the sashes, the cords, and the weight relatively to each other as I have shown, I have succeeded in reducing the amount of weighting material much more than has been heretofore done. By fastening the end of the cord as I do, then passing it from the point of fastening down under the pulley on the sash, thence up to a stationary pulley, and thence directly to weight G, having a pulley, I have succeeded in doing away with two-thirds of the weighting material required when the sashes are balanced in the ordinary manner. This arrangement of the parts last described I am not aware of having been shown in previous patents, or of its having been in previous use.

I am also aware of the fact that window-weights have been used with pulleys at their upper ends for attaching them to a cord connected with both of the sashes, the cords being arranged to pass around or above the casing of the sashes through a separate chamber or box provided therefor. When a sash-balance of this character last described is employed the casing must be specially constructed therefor. I am not, however, aware that such balancing devices have ever been constructed with pulleys on the sashes, and without pulleys thus arranged there is practically no decrease whatever in the amount of weighting material required.

I do not in this case claim the detachable devices for securing the pulleys *e* and *h* to the sashes, or the hinged bead or molding. Nor do I herein claim any other features than those specifically set forth in the following claim, preferring to claim all other patentable subjects-matter in another application which I am about to file.

What I claim is—

The combination of the stationary pulleys F H, the sashes provided with the pulleys *e h*, the cord fastened at its ends and passing from the points of fastening under said pulleys *e h* on the sashes, and thence over the fixed pulleys, and the weight G, situated by the side of the sashes, and provided with a pulley which engages with the cord between the fixed pulleys F and H, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. BOGLE.

Witnesses:
JOS. ANGSTADT,
O. B. NAGLE.