WILLIAM H. KING.

Improvement in Sash-Balances.

No. 127,247. Patented May 28, 1872.

Fig. 1.

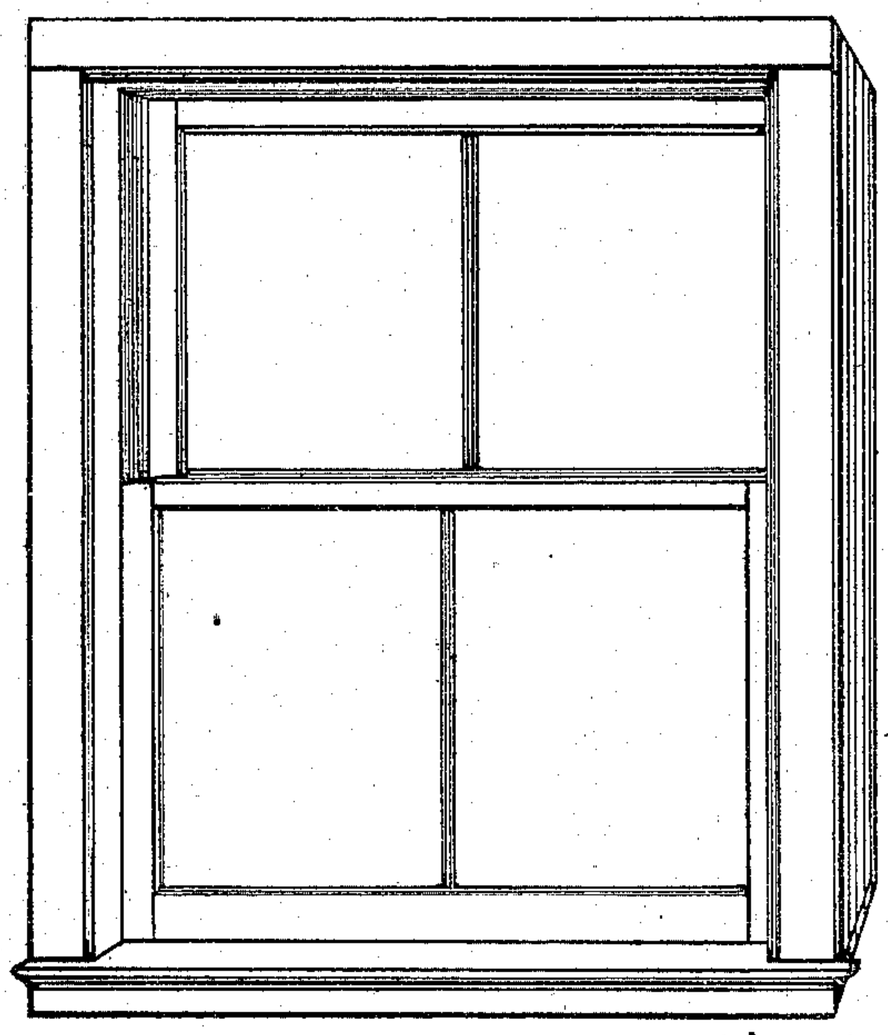


Fig. 2.

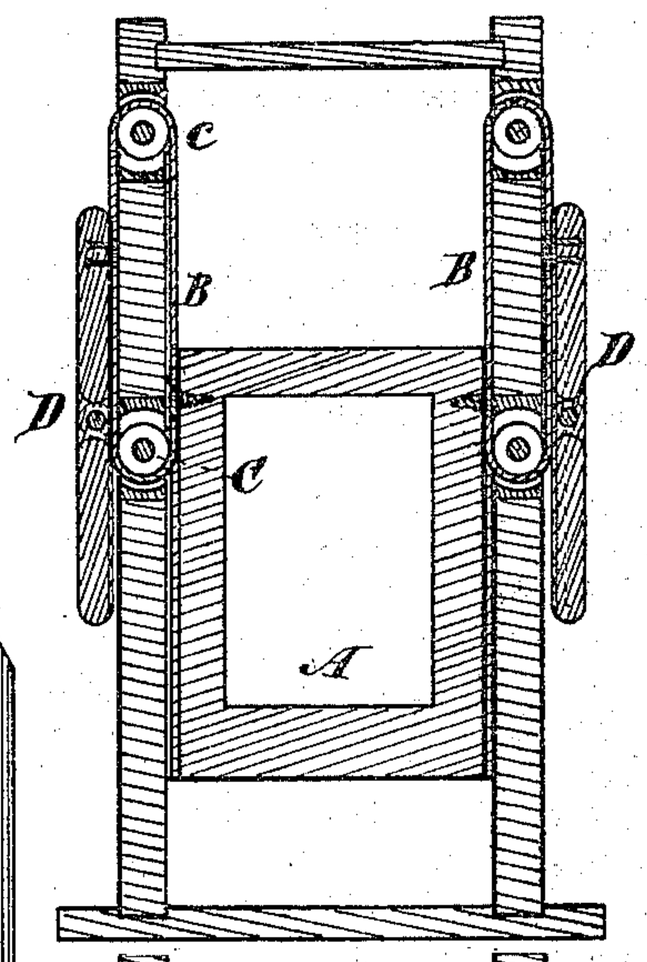


Fig. 3.

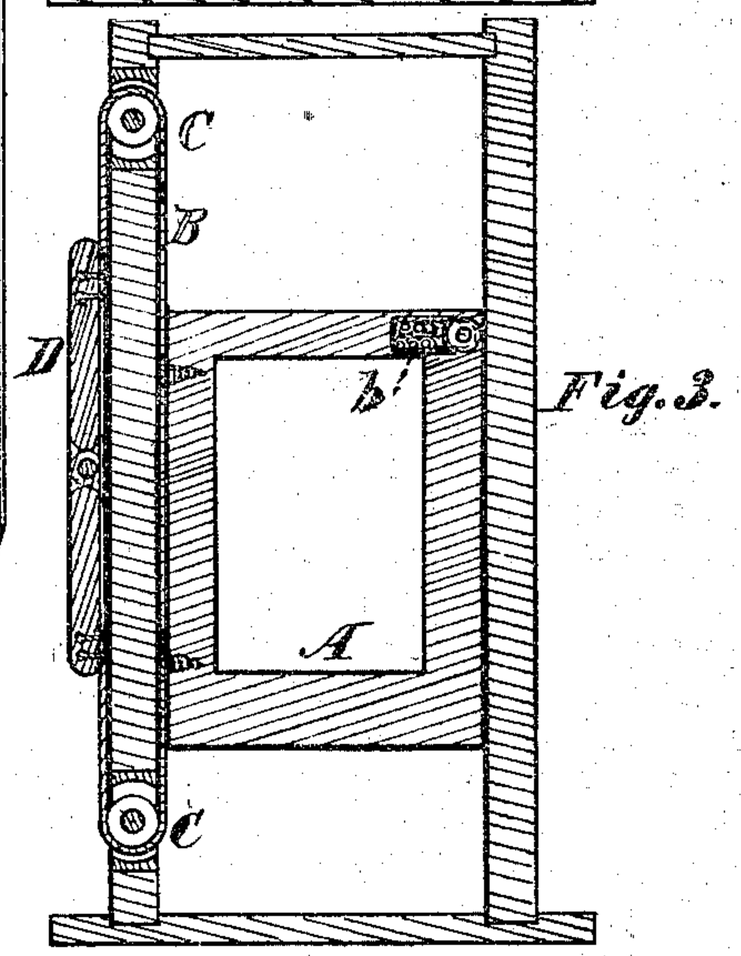


Fig. 4.

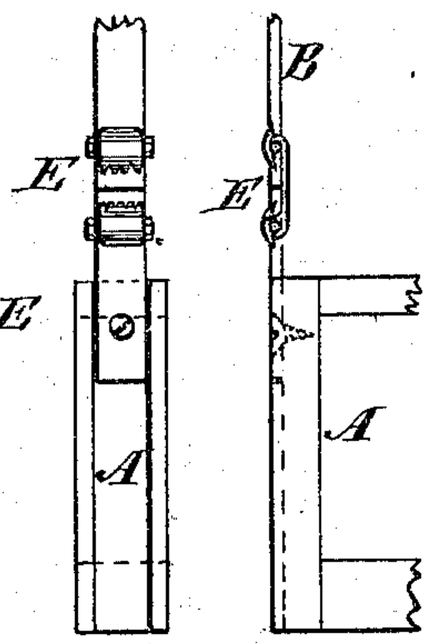


Fig. 5.

Fig. 6.

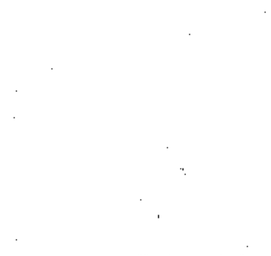


Fig. 7.

Fig. 8.

Fig. 9.

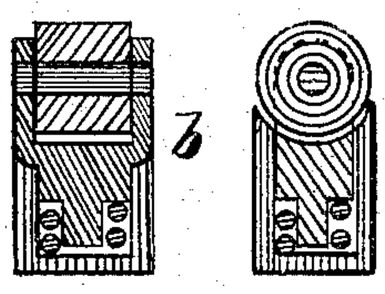
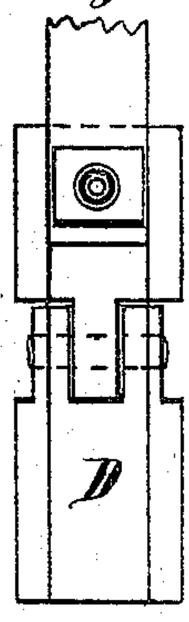


Fig. 10.

Fig. 11.



Witnesses:

Wm. F. Duhamel

Wm. J. Peyton

Inventor.

W. Haskell King

UNITED STATES PATENT OFFICE.

WILLIAM HASKELL KING, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. 127,247, dated May 28, 1872.

To all whom it may concern:

Be it known that I, WM. HASKELL KING, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Sash-Balance, of which the following is a specification:

My invention relates to a method of hanging window-sashes; and consists in securing the sash to endless belts passing over two pulleys arranged within the window-frame in the plane of the sash, having hinge-jointed or other weights attached, the whole so constructed that the belt carries a sash on one side and a weight on the other; also, in the peculiar construction of a hinge-jointed sash-weight; all of which will be more fully described, and then set forth in the claims.

In the drawing, Figure 1 is a perspective view of the window. Figs. 2 and 3 are central vertical sections through frame and sash. Figs. 4 and 5 are side and edge views, respectively, of the sash and belt with the belt-fastenings. Fig. 6 shows the belt-fastening in side and front views. Figs. 7 and 8 are a front view and a vertical cross-section, respectively, of the pulleys. Fig. 9 shows the compensating-bolt in two cross-sections. Figs. 10 and 11 are, respectively, a cross-section and front view of the hinge-jointed weights, showing their construction and mode of attachment to the belt.

Heretofore great inconvenience and trouble have been experienced in balanced sashes from the cord and weight not acting properly, and from the difficulty in removing sash for cleansing the windows. Another difficulty has been experienced by builders in putting the weight in the frame—viz., if the weight is long the recess by which it is inserted into its place has also to be made large, and requires a large box, and even then great trouble is experienced; and in order to obviate these I make my weight in two or more parts and hinge them together, whereby, as will be understood, it can be readily put in its place.

To obviate the first-mentioned difficulties I construct my sash, &c., as follows: A is the sash, attached to an endless belt, B, which latter passes over pulleys C C secured in the frame. The sash A is grooved on its edge or edges, as shown in Fig. 5, for the purpose of receiving the belt or belts. The belt B may be of leather, rope, or other material, and secured to the sash in its edge groove by screws or other suitable method. D is the hinge-jointed weight, which is also attached to the belt in any suitable manner. Any ordinary weight may be used, but the one I prefer is made in two or more parts, secured together by tongue-and-mortise joint, or the like, as seen in Fig. 11.

The object in making the weight hinge-jointed is that it may be more readily inserted into the recess in which it moves, and, inasmuch as it is permanently attached to the belt and moves with it without swaying or catching, a box-frame is not required. The hinge-jointed weight is also grooved, as seen in Figs. 10 and 11, so that the belt can fit snugly against it and thus render it less liable to derangement.

The ends of the belt are secured by the fastening E, shown in Figs. 4, 5, and 6, which consists of a plate, to which two serrated tongues, *a a*, are hinged. The ends of the belt are held by slipping them in the ends of the plate under the edge of tongue *a*. A spring-bolt, *b*, (see Figs. 3 and 9,) is secured in one end of the sash, and serves as a guide to keep the sash in position. This bolt has been fully described in a patent heretofore granted to me. The pulley *c*, over which the belt passes, is shown in Figs. 7 and 8, and consists of a roller, *c*, secured upon journals having bearings in a casing, *d*. This casing is provided at its top and bottom with sharp projections *e f*, which are driven into the frame and securely hold it in place. These pulleys may be cast in any desired form for fastening in the frame.

In Fig. 2 the upper sash is shown suspended from two belts, and in Fig. 3 the lower sash is shown attached to one. Either one or two may be used, but, generally, one will be found enough, as I can make the weights sufficiently large and heavy to counterbalance the sash.

The belt may be continuous, and attached to the weight and sash at one point or more on each, as in Fig. 2; or one piece may be secured to the top of the weight by one end, and to the top of the sash by the other; and another piece, secured to the bottom of the weight and sash, as in Figs. 3, 4, 5, and 11, so that the two pieces, with the sash and weight, form a continuous or endless belt.

By using endless belts and securing the weights and sashes directly thereto the sash can be more readily and easily moved, and

without jerking, jarring, and catching. The sash can be readily removed by detaching the belt-fastening and taking off the binding-strip, and as easily as the sash having no weights.

When only one belt and weight are used I insert a bolt, *b*, above described, into the upper or lower end, or both ends of the sash, and this serves to guide the sash and make it move easily and smoothly. In light sashes, where one belt is used, the bolt *b* will not be required.

What I claim is—

1. A hinge-jointed sash-weight, D, constructed substantially as described, for the purpose set forth.

2. An endless belt, B, passing over the two pulleys C C arranged within the window-frame in the plane of the sash, and carrying on one side of the belt a sash, and on the other a jointed or other weight, for the purpose set forth.

3. The sash of a window-frame raised and lowered by means of one or more endless belts passing over pulleys C C arranged within the jamb of the window, and provided with jointed or other weights, as described, the ends of the said belts being detachably connected together by a fastener, E, so as to be readily detached to lower the weight and enable the sash to be removed or to be laterally swung around, as set forth.

To the above I have signed my name this 4th day of May, 1872.

W. HASKELL KING.

Witnesses:

W. J. PEYTON,

WM. K. DUHAMEL.