W. H. BICKNELL.

SASH-PULLEY.

No. 169,766. Patented Nov. 9, 1875.

Fig. 1

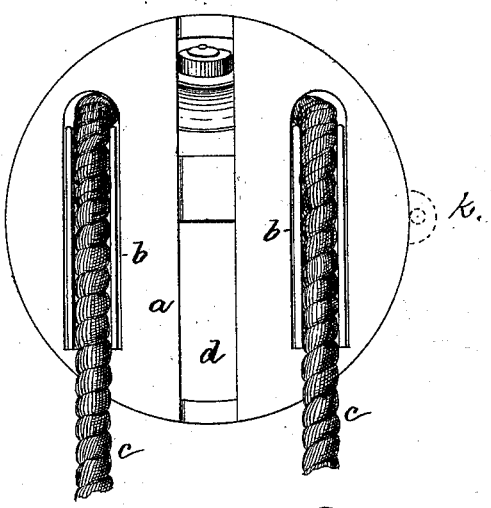


Fig. 2.

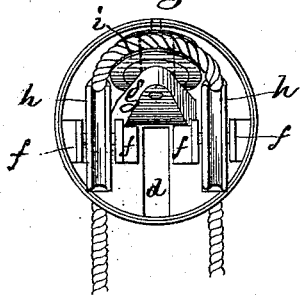
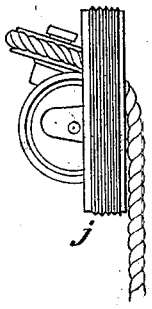
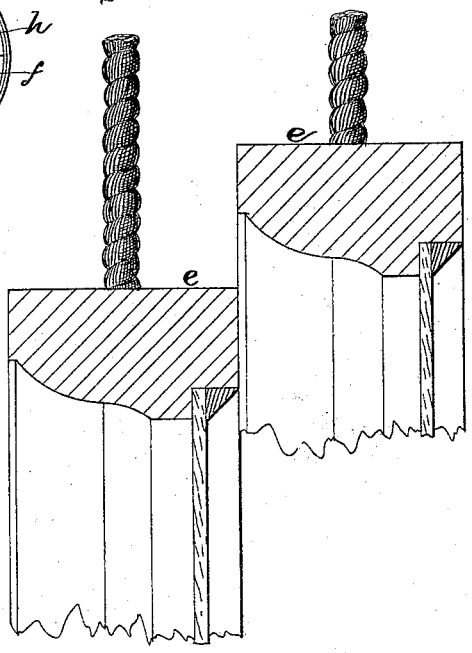


Fig. 3.





Witnesses.

L. H. Latimer.

W. J. Pratt.

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per Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE.

WILLIAM H. BICKNELL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SASH-PULLEYS.

Specification forming part of Letters Patent No. **169,766**, dated November 9, 1875; application filed September 28, 1875.

To all whom it may concern:

Be it known that I, WILLIAM H. BICKNELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Sash-Pulley, of which the following is a specification:

This invention relates to improvements in sash-supporting pulleys, whereby the usual window-weights may be dispensed with; and the invention consists in a sash-pulley provided with two pulleys or guides to control the vertical position of the sash-cord, with a third pulley or anti-friction surface to receive and hold the bight of the doubled sash-cord, and an opening for the sash-separating bead, all substantially as specified.

Figure 1 is a view of one of my sash-supporting pulleys in place in a window-frame, and shown as connected by cords with sash, each sash acting as a counter-balance for the other. Fig. 2 is a rear side view of one of these improved pulleys; and Fig. 3 is a side view thereof.

In the drawing, *a* is the frame of the sash-pulley, having openings *b b* for the passage of the doubled sash-cord *c*, an opening, *d*, for the usual bead separating the two sash *e e*, such bead, however, not being shown. At the back of the front plate of the pulley are ears or lugs *f*, *f*, and *g*, to support pulleys *h i*, two pulleys, *i*, being shown. The pulleys *h i* are shown as grooved to better retain the rope *c*, and their peripheries are placed in, or substantially in, the slots *b*, the pulleys turning on journals in lugs *f*. The pulley *i* is placed above, and preferably centrally between, pulleys *h*, and at an inclination to the face of the pulley-frame, and the pulley *i* is preferably of such size that it will deliver its rope or cord into the grooves of pulleys *h* without binding on the flanges, whereby the cord would be cut or unnecessarily worn or chafed. The outside circular portion *j* of the frame is provided with a screw-thread, and the frame is circular, so that the pulley may be screwed into a hole bored or cut in a window-casing; or, if desired, ears or lugs *k* may project from the side of the frame, as shown in dotted lines at the right of Fig. 1, whereby, by means of screws, the pulley-frame may be held in position.

It is evident the frame might be of other than circular shape, but circular is preferred.

Instead of the pulley *i*, as shown, I may employ an anti-friction cylinder or roller, extending from the lug *g* to the edge of the frame *a*, as shown in dotted lines, Fig. 2, and instead of pulleys *h* I might use short anti-friction roller sleeves or wheels, and, in some instances, with light sash, I might dispense altogether with rollers *h*, and allow the vertical portions of the rope to pass over stationary guides at the front of the frame.

I do not desire to limit my invention to the use of the particular wheels shown.

The frame *a* and lugs will preferably be cast in one piece, and the screw-thread at the edge be formed by casting.

In some cases one sash is very much heavier than another connected by the same cord, and in such cases I propose to use a friction device to meet and hold one sash at any desired place.

Sash connected by a single cord may be counterbalanced evenly, so as to move freely and lightly without the use of weights, as usual.

The pulley *i* might be supported at or below the lower edges of the pulleys *h*, and be placed on a horizontal stud, the wheel turning in a vertical rather than in a horizontal plane.

I claim—

1. A sash-pulley frame, provided with openings for the passage of a single rope or cord, and with an intermediate opening or groove for the reception of the sash-separating bead, in combination with the two pulleys or guides to control the vertical portions of the sash-cord, and with a pulley to sustain the bight of the sash-cord, substantially as described.

2. A sash-pulley frame, provided with openings for the passage of a single rope or cord, and with an intermediate opening for the reception of the sash-separating bead.

3. A sash-pulley, provided with three pulleys, arranged as shown, a screw-thread, and ears for bearings for the pulleys, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. BICKNELL.

Witnesses:

G. W. GREGORY,

S. B. KIDDER.