

(No Model.)

A. KEYSER.
SASH BALANCING DEVICE.

No. 346,110.

Patented July 27, 1886.

Fig. 2.

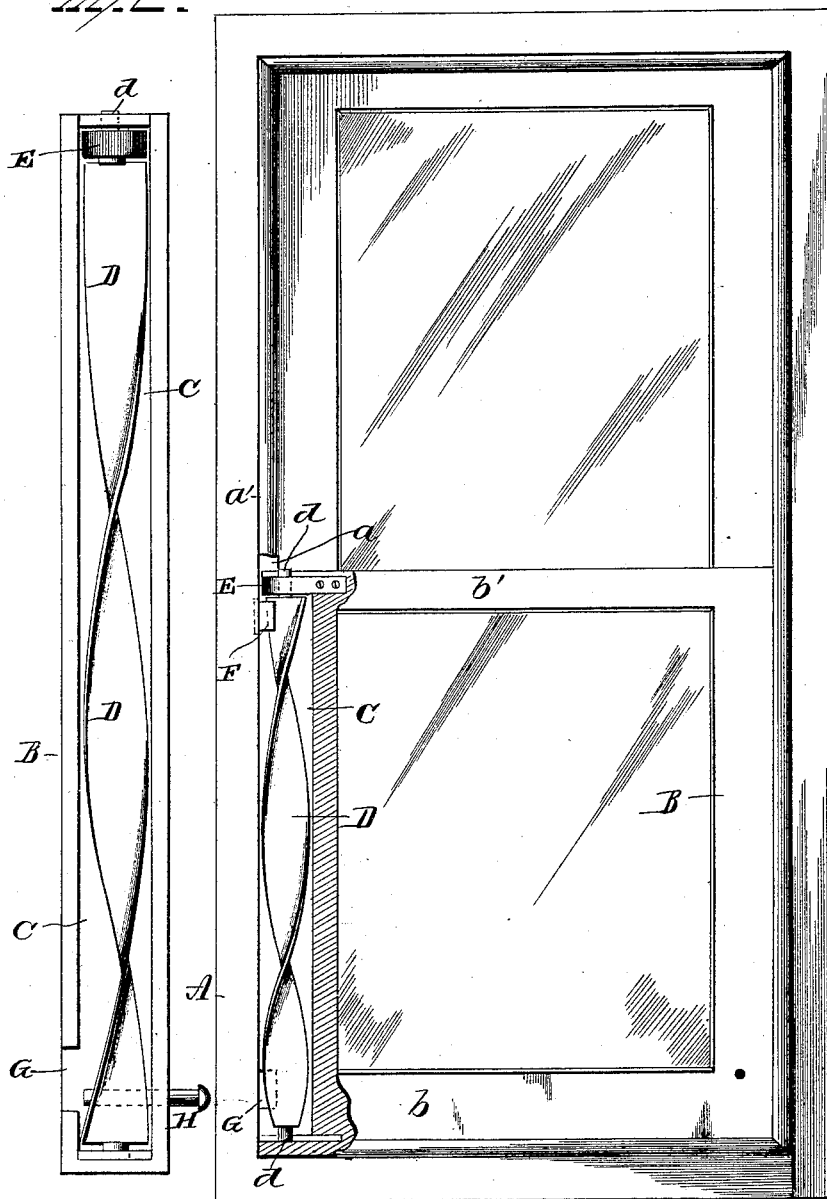


Fig. 3.

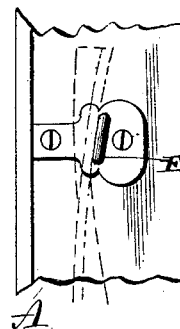
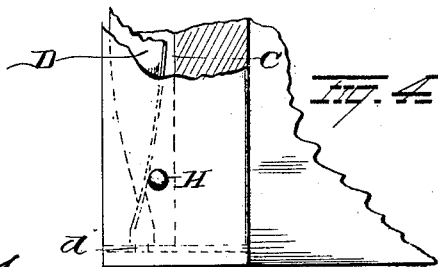


Fig. 4.



WITNESSES

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SASH-BALANCING DEVICE.

SPECIFICATION forming part of Letters Patent No. 346,110, dated July 27, 1886.

Application filed April 6, 1886. Serial No. 198,034. (No model.)

To all whom it may concern:

Be it known that I, ANDREW KEYSER, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Windows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in windows.

The object is to provide a device for holding a sash in any required elevated adjustment without necessitating the cutting of the window-frame and the exposure of unsightly parts.

A further object is to provide a sash-holding device which may be applied to windows now in general use without disturbing any part of the window-frame, and which will admit of the ready and easy adjustment and removal of the sash for cleaning the glass, putting in new glass, &c.

A further object is to provide a sash-holder which shall hold the window snugly against the parting-bead or stop, as well as in elevated adjustment, thereby preventing rattling and the entering of wind and moisture.

A further object is to provide a neat, durable, effective, and inexpensive sash-holder adapted to all styles, sizes, and weights of sash.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a window frame and sash embodying my improvement, the sash being partially broken away on one side, showing a portion of the holding device in position for use. Fig. 2 is a side edge view of a sash, showing the holder in position. Fig. 3 is an inside view of one side of the frame, showing the stationary operating-lug attached thereto and the graduated spiral in engagement therewith, the position being that which the spiral assumes when the sash is adjusted for use; and Fig. 4 is a detached view of one corner of the sash, showing a stop in position to prevent the spiral from turning.

A represents a window-frame of ordinary construction, save that it is not cut to receive

a pulley and cord, as is common, but is made with a smooth imperforate face on the side toward the sash. A parting-bead, *a*, is secured in position between the sashes, and the back and front stops, *a'*, are as is usual.

B represents the stile of a window-sash, and *b b'* the bottom and top rails of the sash, respectively.

The outside edges of the sash-stiles B are grooved or plowed out, as shown at C, and in said grooves or channels are journaled the rotary spiral rods or bars D. The spirals D consist, preferably, of thin strips of metal, having thickness enough, however, to make them rigid when submitted to the greatest strain to which they are liable to be subjected, and are twisted into a graduated spiral form, as shown. The ends are provided with journals *d*, which have bearings in plates or blocks in the corners of the sash. The twist on the spirals is graduated, the pitch being increased from top to bottom. The spirals are made with right and left twist, for the purpose of exerting a strain in the same direction on the edges of the sash. To the upper or lower ends of the spirals are secured the ends of coiled springs E, the springs being coiled around the journals and their opposite ends secured to the sash or bearing-plate, as may be found most convenient.

On the stiles of the window-frame toward the sash are secured a pair of lugs, F, one on each side, set slightly oblique to the plane of the sash, and adapted to engage the spirals, as shown in Fig. 3. The lugs F may be cast on small plates, and the plates secured to the window-frame by screws or nails; or they may be provided with screw-stems and screwed into position, or other approved means might be employed to secure them in position.

The sash is adjusted in the window-frame by means of open slots G, formed in the rear side edges of the sash, just deep enough to receive the lugs F. The sash, when placed in the frame with the slots G opposite the lugs, may then be pressed back or outwardly, bringing the side edges of the sash in contact with the stop or parting-bead and the lugs into engagement with the spirals. The spirals, before the sash is adjusted in the window-frame, should be rotated sufficiently to give the spring the tension required to hold the sash at any point of elevation by frictional contact between the

spirals and the lugs F. Of course this would differ with different sashes, and could readily be determined by one or two trials.

To hold the spirals in their normal adjustment while the sash is being adjusted in the window-frame, a pair of stops, H, consisting, preferably, of pins extending through the corners of the sash into engagement with the spirals, may be inserted. When the sash is adjusted and the pins or stops H removed, the spirals tend to unwind, and in so doing press against the outsides of the lugs F, and hence press the window-sash snugly against the outside stop or parting-bead.

The sash is preferably adjusted to the window-frame in a position at or near its most elevated limit. It follows, therefore, that when drawn down to its closed adjustment, the spirals in engagement with the lugs F will be rotated, and the tension of the springs E will be thereby increased. Because of the said increase in the tension of the springs the friction will be increased between the spirals and the lugs F; hence the pitch of the spiral may be increased, and the window allowed to slide more freely than it would were the pitch to continue the same from bottom to top. It will be observed that the tension of the springs tends to rotate the spirals in the direction which would tend to elevate the sash, and hence relieve as far as possible the lifting strain on the part of the operator.

The stops H, which have already been referred to in connection with the adjustment of the sash, will also serve as sash-locks when the window is partially or entirely closed, since they serve to prevent the rotary motion of the spirals, and hence prevent them from traveling along the lugs F.

From the above it will be observed that the sash-holder may be applied to windows of ordinary construction now in use, requiring only the preparation of the sashes to receive the spirals, and that a sash may be removed with great facility for cleansing, painting, or putting in glass, while the openings in the window-frame, which have hitherto proved annoying in letting in cold air, and the boxes for weights, requiring a general tearing-up of the frame when the cord breaks, are entirely avoided.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention. For example, a spring might be employed at each end of the spiral, and the springs might be wound to cause the spirals to bear against the inside stop and parting-bead instead of the outside; hence I do not wish to limit myself strictly to the construction herein set forth; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a window-sash, of a spring-actuated spiral strip or bar journaled in the sash and a projection on the window-frame adapted to engage the spiral strip or bar and retain the sash in the desired adjustment, substantially as set forth.

2. The combination, with a spiral rod or bar journaled in a window-sash and adapted to engage a lug on the window-frame, of a stop adapted to engage the spiral rod or bar and prevent it from rotating, substantially as set forth.

3. The combination, with the window-frame having a projection, of a window-sash having a frictional sash-holder located in the edge thereof and provided with a slot adapted to register with the projection on the window-frame, whereby the sash can be adjusted in and removed from the frame sash-holder.

4. The combination, with a window-frame having a projecting lug, of a window-sash carrying a frictional sash-holder and provided with a slot adapted to register with the lug on the window-frame, and a device for locking the frictional sash-holder against movement, substantially as set forth.

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

ANDREW KEYSER.

Witnesses:

JNO. E. JONES,

C. S. DRURY.