

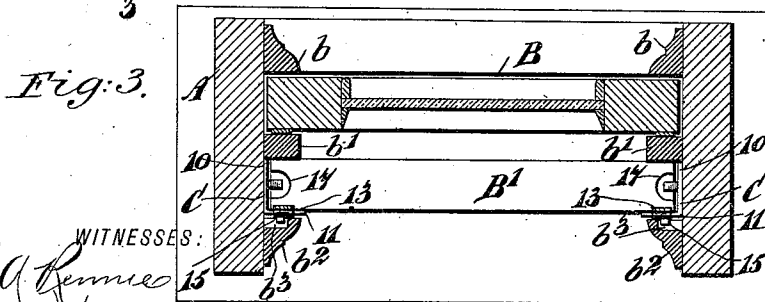
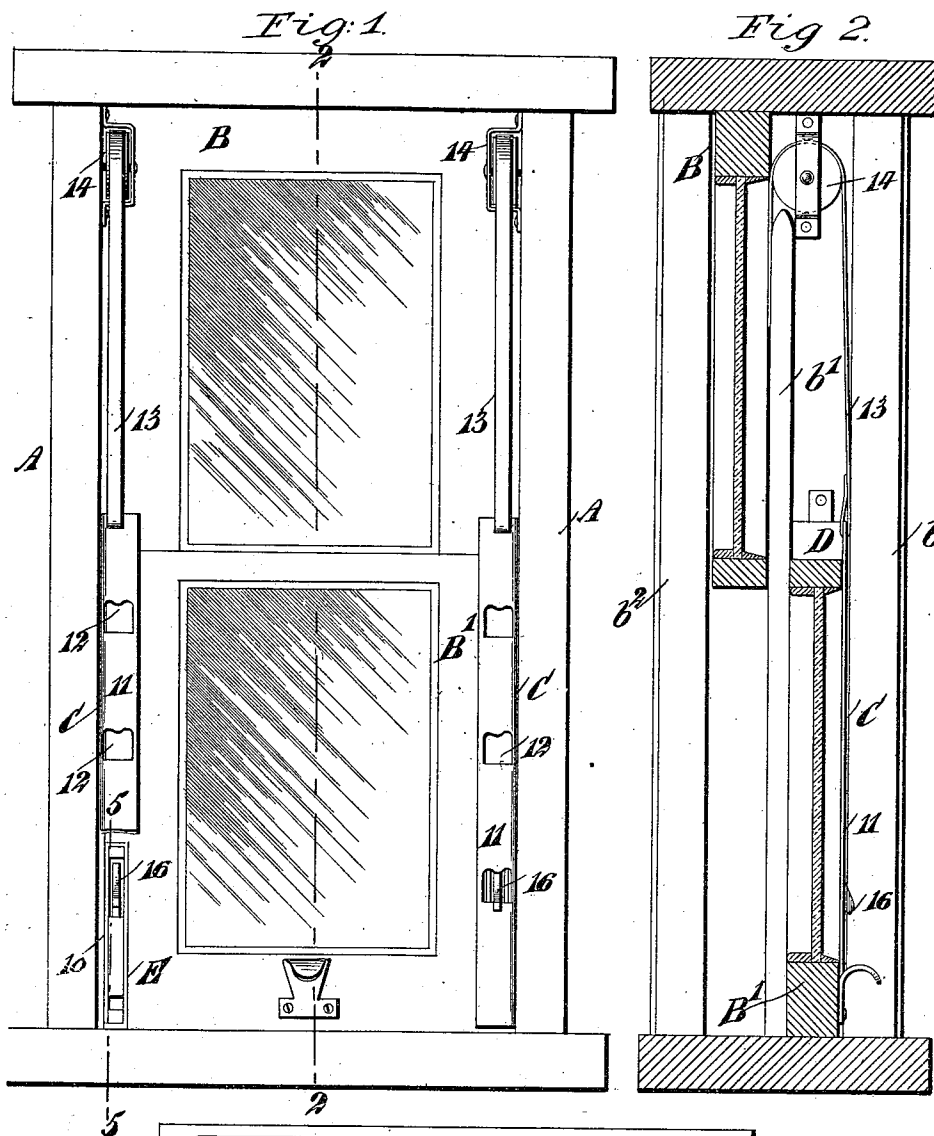
(No Model.)

2 Sheets—Sheet 1.

P. MARSHALL.
SASH BALANCING DEVICE.

No. 561,014.

Patented May 26, 1896.



WITNESSES:

J. A. Remick
J. A. Remick

INVENTOR

P. Marshall.

BY

Mum
ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

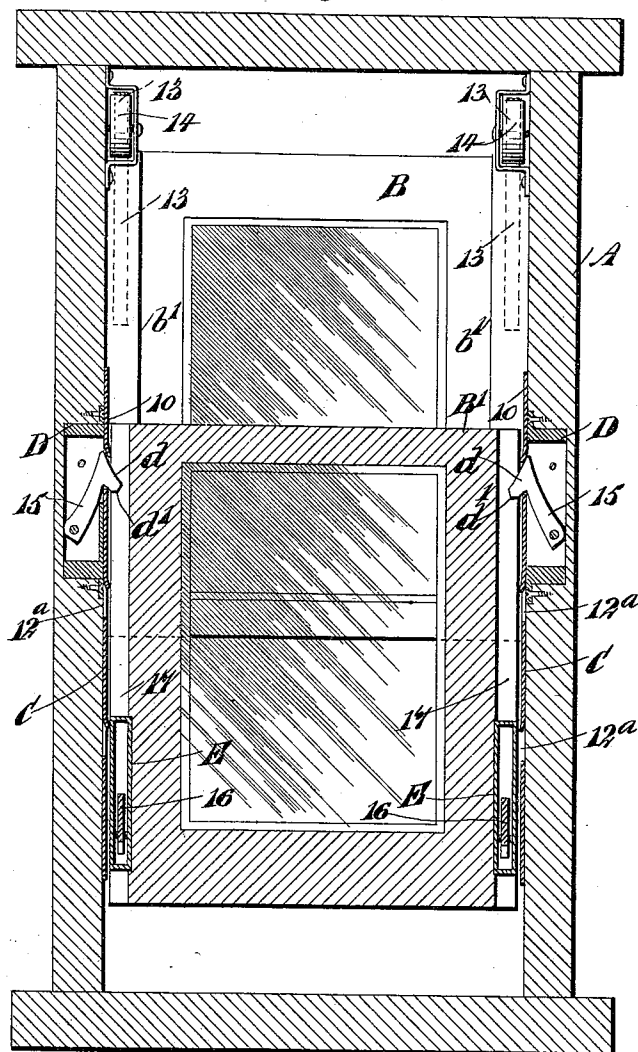
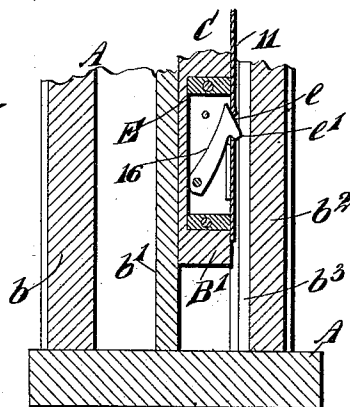


Fig. 5.



WITNESSES:

J. A. Rennie
John A. Rennie

INVENTOR

P. Marshall

BY

Mumy

ATTORNEYS

UNITED STATES PATENT OFFICE.

PORTER MARSHALL, OF FAIR PLAY, MISSOURI.

SASH-BALANCING DEVICE.

SPECIFICATION forming part of Letters Patent No. 561,014, dated May 26, 1896.

Application filed January 17, 1896. Serial No. 575,880. (No model.)

To all whom it may concern:

Be it known that I, PORTER MARSHALL, of Fair Play, in the county of Polk and State of Missouri, have invented a new and useful Improvement in Devices for Operating Window-Sashes, of which the following is a full, clear, and exact description.

My invention relates to devices for operating window-sashes, especially sashes of large size.

The object of the invention is to provide a means whereby the upper sash of a window-frame may be raised and lowered by correspondingly operating the lower sash, and whereby, also, when desirable, the lower sash may be operated independently of the upper sash.

A further object of the invention is to construct a device capable of the above-mentioned results, readily adaptable to any window, and which will be durable, simple, and economic in its construction.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of a window-frame and window-sashes contained therein, the latter having the improvement applied thereto. Fig. 2 is a vertical central section through the window-frame and window-sashes, the said section being taken substantially on the line 2 2 of Fig. 1. Fig. 3 is a horizontal section taken through the frame and through the upper sash of the same. Fig. 4 is a vertical section through the lower sash and through the window-frame, the section being taken at right angles to that shown in Fig. 2; and Fig. 5 is a detail sectional view taken substantially on the line 5 5 of Fig. 1.

In carrying out the invention the window-frame A may be of any desired shape or of any size, and is provided with the usual upper and lower sashes B and B', held to travel in the usual sash-grooves. The two sashes are separated by the ordinary parting-strip b', and an outer or back stop b is employed,

together with an inside or front stop b², the latter having a vertical groove b³ in its inner face, as is best shown in Fig. 3. The two sashes B and B' are made to balance one another, and the upper sash has attached thereto at each side one end of a tape 13. These tapes are carried upward over friction-rollers or pulleys 14, located at the upper portion of the window-frame upon its inner side faces, and the said tapes, after having been passed over the said pulleys, are each attached to a locking-strip C.

The locking-strips C are preferably made of metal, although any desired material may be used, and the said strips are angular in cross-section, comprising what may be termed a "side" member 10, adapted for loose engagement with the inner side face of the window-frame, and a "front" member 11, adapted for loose engagement with the inside or front stop b². Each of the locking-strips C is provided with openings 12 in the front member 11, as shown best in Fig. 1, and these openings are at predetermined distances apart, while openings 12^a are likewise made in the inner or side members 10 of the aforesaid locking-strips. The openings in both members of the strips are preferably located substantially opposite each other.

A casing D is countersunk in the inner face of each side of the window-frame at about a point where the two sashes would meet when closed. A gravity-latch 15 is pivoted in each of the said casings D, and the heads of the said latches are adapted to extend outside through suitable openings in the front portion of the aforesaid casings, as shown in Fig. 4. The heads of the latches are provided with a beveled or decidedly-inclined upper surface d, and the lower edge d' of the head of each latch is also decidedly inclined, as shown in Fig. 4, the inclination of the bottom portions of the heads being substantially at a right angle to the upper inclined surface d.

A casing E is introduced into each side edge of the lower sash B', and in each of these casings E a gravity-latch 16 is located, and the heads of these latches, as illustrated in Fig. 5, are adapted to extend out through suitable openings in the casing, the said openings being made in the front faces of the cas-

ings, and these faces are substantially flush with the front or inner faces of the lower sash, as shown in Fig. 1.

A slot or a groove 17 is made in each side edge of the lower sash B', extending from the top of the casings E to the upper edge of the sash, as shown in Figs. 3 and 4. The latches 15, located in the frame-casing D, are adapted to enter the openings 12^a in the side members 10 of the locking-strips, while the latches that are carried by the lower sash are adapted to enter the openings 12 in the front members 11 of the aforesaid locking-strips, as shown in Figs. 1, 4, and 5.

In the operation of the device, both of the window-sashes being closed and it being desired to lower the upper sash, the lower sash is raised, whereupon the upper sash will drop a corresponding distance, and when the upper sash has been dropped a sufficient distance to enable the upper latches 15 in the window-frame to enter one of the openings 12^a in the locking-strips, as shown in Fig. 4, the latches will hold the locking-strips in their upper position, the said strips having been carried upward with the lower sash by reason of the heads of the latches of said sash extending through the lower openings 12 in the front members of the said locking-strips. After the locking engagement between the frame-latches and the locking-strips has been accomplished the lower sash is carried upward until the heads of the latches carried by the said lower sash will engage with the surfaces of the locking-strips between a lower opening 12 and the next opening above. This contact between the latches of the lower sash and the locking-strips will carry the said latches within their casings, so that by a quick downward movement the latches of the lower sash may be jumped over the lower openings in the locking-strips and the sash may then be lowered to an engagement with the sill of the window-frame, if desired, leaving the upper sash in its open position. When it is desired to close the upper sash, the lower sash is raised until its latches are again in engagement with the locking or governing strips C, whereupon the lower sash is closed, carrying the upper sash at the same time to its upper closed position, as shown in Fig. 1.

By reason of the decidedly-inclined upper surfaces *d* of the frame-latches and the lower inclined surfaces *d'* and also by reason of the corresponding surfaces *e* and *e'*, formed on the heads of the sash-latches, the latches will readily pass the governing or locking strips

when the said strips are quickly manipulated; but when the strips are slowly manipulated the heads of the latches will naturally gravitate into the openings of the locking or governing strips that may be presented to them. I desire it to be understood that if the two sashes are not to operate in unison an apertured strip may be provided for either the upper or the lower sash, or for both, the said strip or strips being secured to the inner face of the window-frame to receive the latches carried by the sashes.

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

1. The combination, with the upper and lower sashes of a window-frame, and strips angular in cross-section and having sliding movement in the frame, of a connection between the said strips and the upper sash, and gravity-latches carried by the lower sash, and adapted for locking engagement with the aforesaid apertured strips, as and for the purpose specified.

2. The combination, with the upper and lower sashes of a window-frame, and slides, angular in cross-section, having free movement in the said frame and connected with the upper sash, of gravity locking devices located in the frame, adapted for locking engagement with one member of each of the said strips, and similar locking devices carried by the lower sash and adapted for engagement with the second members of the aforesaid strips, as and for the purpose specified.

3. The combination of a window-frame, sashes arranged to move therein, a locking-strip connected to and arranged to move with one sash and having means to detachably connect it to the other sash, and a gravity-latch mounted on the frame in position to engage and hold said locking-strip against movement, substantially as set forth.

4. The combination of a window-frame, sashes arranged to move therein, a locking-strip, a flexible connection between the locking-strip and one sash, a gravity-latch mounted in the frame and arranged to engage said strip and hold the same against movement, and a gravity-latch carried by the other sash and detachably connected with the locking-strip, substantially as set forth.

PORTER MARSHALL.

Witnesses:

JAMES CUNNINGHAM,
JACOB E. RICHARDS.