(No Model.)

W. F. LENNON.

SASH BALANCE.

No. 346,663. Patented Aug. 3, 1886.

Fig. 2.

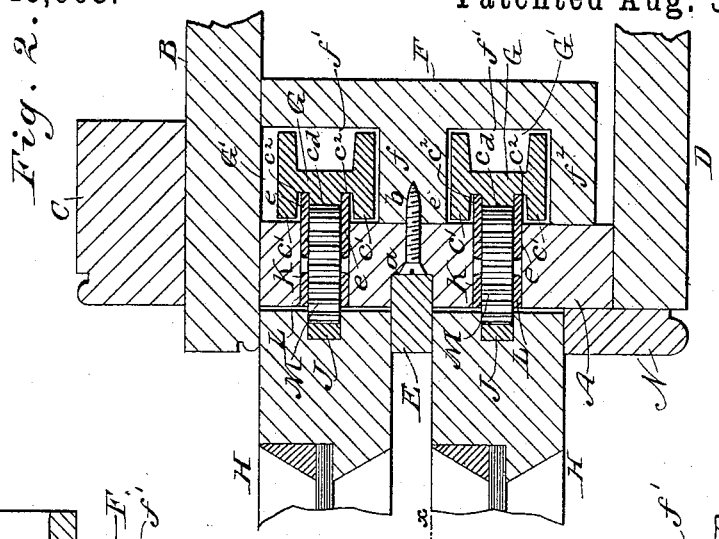
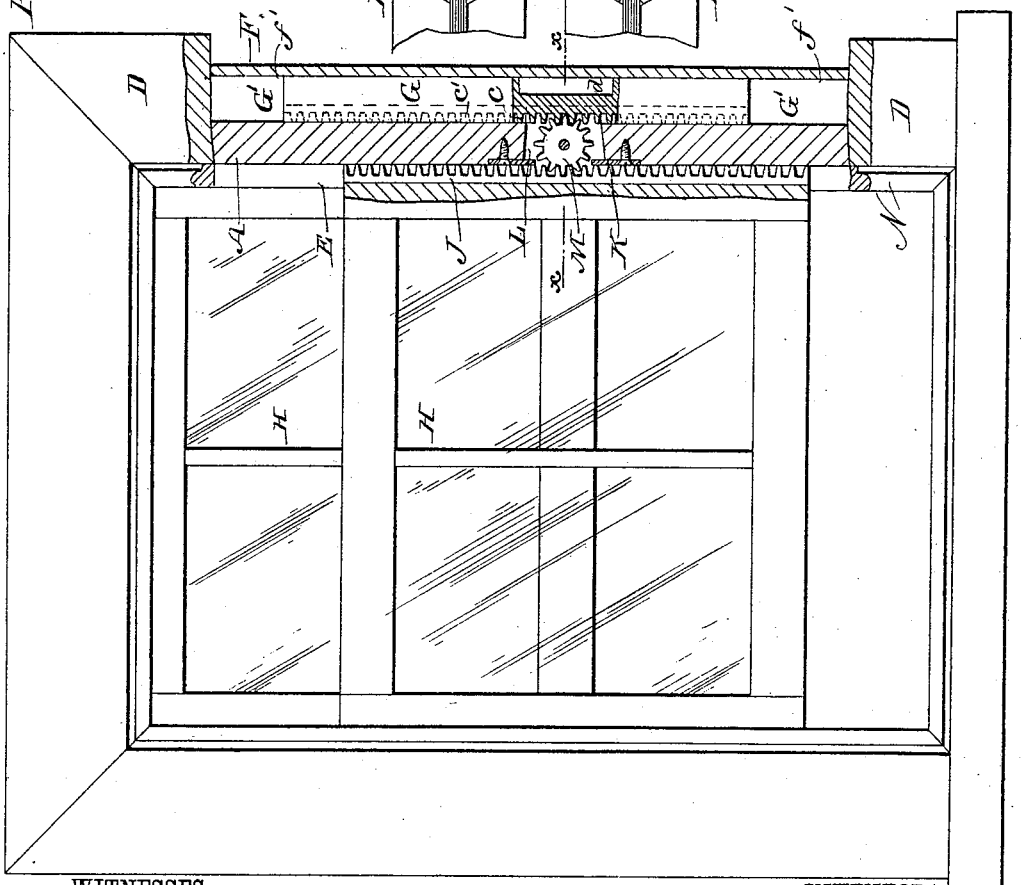


Fig. 1.



WITNESSES:

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SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 346,663, dated August 3, 1886.

Application filed March 17, 1886. Serial No. 195,531. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. LENNON, of the city, county, and State of New York, have invented a new and Improved Sash-Balance, of which the following is a full, clear, and exact description.

My invention relates to that class of sash weights or balances wherein each weight is formed with a rack and is connected with a rack on the window-sash by an intermediate pinion fitted in an opening formed in the window-stile; and my invention consists, principally, in forming the weight with guide-flanges to act in connection with the boxes in which the pinions are journaled, or other projections upon the inner surfaces of the stiles of the window-frame, for guiding the weights in their up and down movements in the weight-channels.

The invention also consists of the weights formed with guides, in combination with the pinion-boxes constructed to project into the weight-channels for guiding the weights.

The invention further consists of an inner or false stile constructed with a division-strip to separate the weights, and also to form the weight-channels; and the invention finally consists of the construction, arrangement, and combination of parts, all as hereinafter described and claimed.

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

Figure 1 is a broken front elevation of a window and window-frame having my invention applied thereto, the lower sash being shown partly raised; and Fig. 2 is an enlarged sectional plan view of one side of the window and frame, taken on the line *x x* of Fig. 1.

I will describe one side of the window and window-frame, the other being similar. The window-casing is composed, mainly, of the stile A, outside stop-casing, B, to which the blind or hanging-stile C is secured, and the inside casing-piece, D. The stile A is grooved at *a* to receive the parting-strip E, and to the inner surface of the stile A is secured, by screws *b* or other fastenings passed through the stile in the groove *a*, the inner or false stile, F, which is formed or provided with the central strip, *f*, which separates the window-weights G G. By preference the inner stile, F, is grooved at *f' f'*, or rather, made F-shaped in cross-section, formed with the said central strip, *f*, and side strip, f^2. The grooves *f' f'*, together with the stile A and the outside facing-piece, B, form the weight-channels G' G', to inclose the said window-weights G G. The weights G are of metal, each cast or formed with a rack, *c*, and of a length about equal to the length of the window-sash H, and upon each side of the rack is formed a guide-flange, *c'*, and at each side of the rack is also formed a groove, c^2; but these may be omitted, if desired. In the back of each weight is formed a channel, *d*, in which more or less lead or other heavy material may be placed to suit the weight to the weight of the window. The window-sashes H are each provided at their side edges with a rack, J, and in openings K, formed in the stile A, are fitted boxes L, in each of which is journaled a small pinion, M, and these pinions mesh with the racks L on the sash and the racks *c* on the weights, so the movement of the sash up or down will communicate a reverse motion to the weights, which thus balance the sash. The side pieces or plates, *e*, of the boxes L are of greater width than the thickness of the stile A, and serve, in connection with the flanges *c' c'* of the weights G, to guide the weights in their up and down movements and prevent them from lateral displacement, and when the weights are formed with the grooves c^2 at the sides of the racks C, I shall extend the side plates, *e*, past the pinion, so they will reach into said grooves, as shown clearly in Fig. 2, thus causing the rack *c* to always properly mesh with the cogs of the pinions M. By the construction described the weights are practical in operation and cheap to construct, and are not liable to get out of order, and by using the inner or false stile, F, no back lining is required in the frame, and the ordinary inside casing is dispensed with, and the attachment of the false stile F to the stile A by screws *b* in the parting-strip grooves is not only practical and cheap, but is invisible. The inner stop-bead, N, is of the usual form and applied in the usual manner, and when the fittings are all in place they are invisible, nothing being seen to disfigure the window.

I no not confine myself to the application of

this counterbalance-weight to windows, as it is applicable to elevators, dumb-waiters, and to various other devices.

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

1. As an improved article of manufacture, a sash-weight provided with a rack, a flange at each side of the rack, and a channel in its back, as set forth.

2. In a sash balance, the combination, with the weight G, provided with the rack *c*, the side flanges, *c'*, and the groove c^2, of the pinion-box L, having its side plates projecting into the grooves of the weight, substantially as shown and described, whereby provision is made for guiding and causing the rack to properly mesh with the pinion, as specified.

3. The stile A, provided with pinions, in combination with the weights G and false or inner stile, F, provided with the strip *f*, to form the channels for the weights G, substantially as described.

WILLIAM F. LENNON.

Witnesses:
H. A. WEST,
C. SEDGWICK.