E. H. HANNUM.

Sash-Balances.

No. 166,363. Patented Aug. 3, 1875.

Fig. 1.

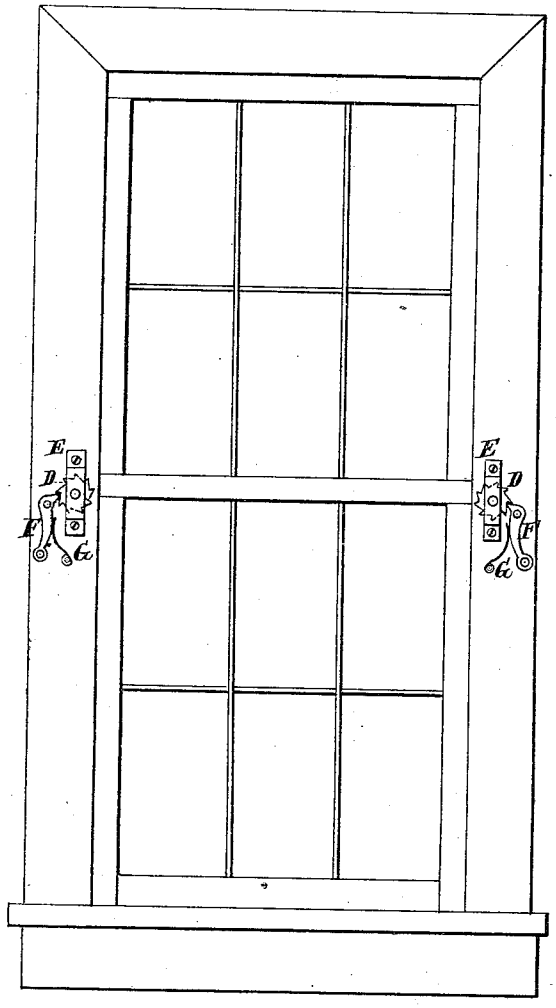


Fig. 2.

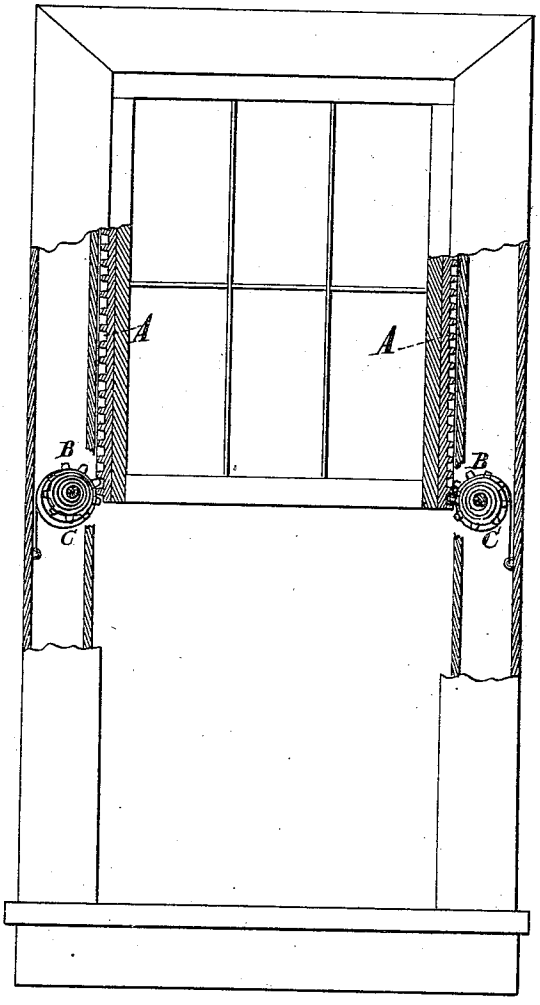
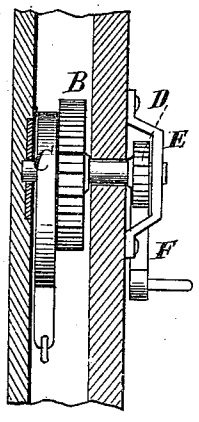


Fig. 3.



Witnesses.
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R. Mason

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UNITED STATES PATENT OFFICE.

EDWIN H. HANNUM, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **166,363**, dated August 3, 1875; application filed February 8, 1875.

To all whom it may concern:

Be it known that I, EDWIN H. HANNUM, of Wilmington, in the county of New Castle and State of Delaware, have invented a new and useful Improvement in Sash-Holders, of which the following is a specification:

In the annexed drawing making part of this specification, Figure 1 is an elevation of a window with my device applied. Fig. 2 is a sectional elevation of the same, and Fig. 3 is a transverse section.

The same letters are employed in all the figures in the designation of identical parts.

Instead of the ordinary pulleys, cords, and weights, I employ a rack, A, engaging a spur-pinion, B, on each side of the sash. A flat spring, C, is coiled around the spindle of the spur-pinion. I have illustrated the spring in the drawing as applied to the lower sash, and the tension of the spring is such that it will more than compensate for the weight of the sash, and as it is wound up like the main-spring of a watch in drawing down the sash, by merely releasing the detents which confine the pinion B, the spring will lift the sash. This detent consists of a ratchet-wheel, D, on the end of the spindle projected through the casing of the window, and turning in a bearing, E. A pawl, F, formed as shown, is pivoted on the window-casing, and has a spring, G, bearing against it, so as to keep the point engaged with teeth of the ratchet. When the pawls are disengaged the tension of the spring will lift the sash until it is stopped by catching the ratchet when the pawl is released. The window-sash may be drawn down without touching the pawl.

A similar device, modified only so as to reverse the action of the pawl, and to hold the upper sash from being drawn down without disengaging the pawl, may be employed for the upper sash.

My invention is distinguished from what has been before known in this combination with the rack-pinion and spring of an automatic detent. The pawl and detent may be covered by a cap having a segmental slot, to permit the projection of a pin on the end of the pawl, which is all of the device that need be in sight.

What I claim as my invention, and desire to secure by Letters Patent, is—

In combination with the window-sash operated by the rack-pinion and spring, the ratchet D, placed outside the casing on the spindle of the pinion, and the automatic detent F G, substantially as set forth.

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

EDWIN H. HANNUM.

Witnesses:

H. HARMAN,

A. D. CHAYTON.