

P. L. Butler,
Sash Balance.

N^o 51,799.

Patented Jan. 2, 1866.

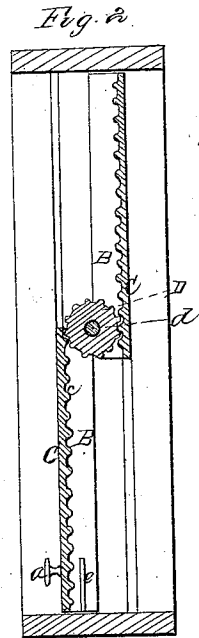
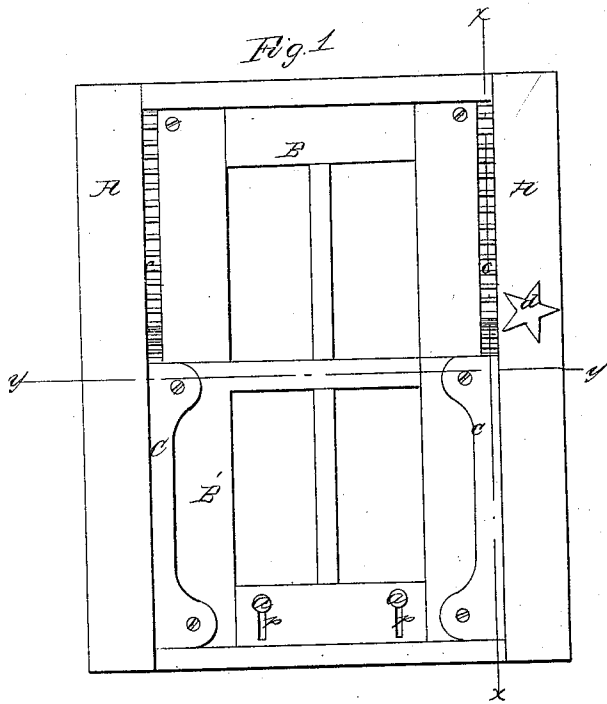


Fig. 3.

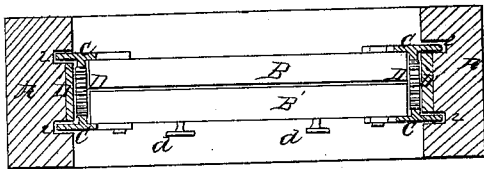


Fig. 6.

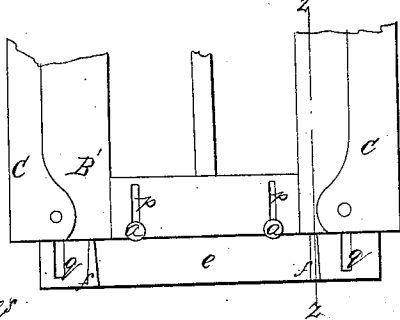


Fig. 4.

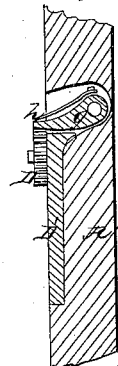
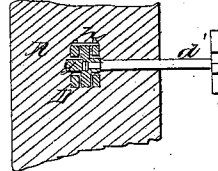


Fig. 7.



Fig. 5.



Witnesses
M. M. [unclear]
[unclear]

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN SASHES AND FRAMES FOR WINDOWS.

Specification forming part of Letters Patent No. 51,799, dated January 2, 1866.

To all whom it may concern:

Be it known that I, P. L. BUTLER, of Cape Vincent, Jefferson county, and State of New York, have invented a new and useful Improvement in Sashes and Frames of Windows; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of the inside of a window sash and frame made according to my invention. Fig. 2 is a vertical cross-section on the line *x* of Fig. 1. Fig. 3 is a horizontal cross-section on the line *y* of Fig. 1. Fig. 4 is a sectional view of part of the casing, to show how the sashes may be locked. Fig. 5 is a cross-section of the parts seen in Fig. 4. Fig. 6 is a detailed view of the lower part of one of the leaves of the sash.

Similar letters of reference indicate like parts.

This invention relates to an improvement in the frames and sashes of windows, whereby the sashes are made to balance each other without the use of weighted cords, and their movements are made reciprocal, and the window-frame is constructed with much more simplicity than by the mode of construction heretofore used.

A A designate the jamb-casings or sides of the frame of a window, and B B' the upper and lower leaves of a window-sash. The sashes are each provided with rack-plates *c*, one plate on each side, which plates may be secured to the faces of the sashes along their edges, or else be laid in recesses cut thereon, so as to be flush with the faces of the sash, or they may be sunk in mortises cut in their edges if it is desired to conceal them from view. The rack-teeth *c* of said plates occur only along that part of their width which is respectively opposite to the faces of the pinions D, as seen in Fig. 3. The inner edges of said plates extend into the vertical grooves Q, cut or otherwise formed in the casings.

D D are pinion-wheels whose axis *d* severally run in bearings formed for them in plates D' set in the casings of the frame. The diameters of these pinion-wheels are to be the same for each, and their size is to be chosen with

reference to the distance apart of the planes of the plate C of the two sashes, or else those plates are to be adjusted with reference to the size of the pinions. The sashes are locked by means of a detent, *g*, which fits between the teeth of one of the pinions, and which is operated by means of a shaft, *d'*, on which it is firmly fixed, and which projects through the face of the casing, having a plate on its end to enable one to handle it with facility. The shaft *d'* is screwed into the hub *g'* of the detent, and the said hub, as well as the detent itself, is let into the upper end of that one of the plates D' which is on the same side of the frame, and has a suitable bearing therein. Fig. 5 shows this construction. The detent is held in place upon the pinion by a spring, *h*.

I do not wish to be restricted to the device here shown for locking the sashes. Instead of a rotating latch, a sliding bolt may be operated by means of the shaft or arbor *d'*, so as to be alternately projected between and withdrawn from the teeth of the pinion.

The plates C are secured to the sashes in such a manner as to prevent them from being removed from the outside, the screws being applied on the inside. Moreover, the pinions and the locking device are protected against being tampered with and operated from the outside by means of the plates C of the upper sash, which cover both the pinion and the locking device.

In the bottom of the lower sash I form a groove, O, which receives a sliding plate, *e*, which I prefer to make of metal. This plate is of a length equal to the width of the sash. It is pushed out or extended by means of handles *a a*, formed on the outer ends of bolts which are secured to the plate, and which work in vertical slots *p p* made in the bottom of the sash. The plate is held up in its slot by means of springs *f f*, secured to its face, and which produce friction enough in the slot O to prevent the plate from falling by its own weight. The plate is guided in its movement by means of slots *q q* cut therein, which embrace the screw-bolts that fasten the lower end of the rack-plates to the lower sash. I do not wish to confine myself to this mode of guiding the extension-plate *e*, nor to the mode here shown of keeping it from falling down by its own weight.

When it is desired to open the window one unlocks the pinion to which the latch or bolt is applied and raises the lower sash, and thereby causes the pinions D to revolve. Their revolution causes the upper sash to descend at the same time and an equal distance with the movement of the lower sash. Upon releasing or replacing the locking-device the sashes will be kept open.

If it is desired to admit air only at the upper part of the window, the plate *e*, which forms an extension of the lower sash, is pushed down to the window-bench. When the window is to be closed it is only necessary to release the pinion which is locked and push down the lower sash, when the revolution of the pinions will cause the upper sash to be returned to its place, and the plate *e* will be pushed up into the slot or socket by the descent of the lower sash.

Among the advantages which follow from my invention are the balancing of the sashes, and so securing an easy movement and operation by the use of only a slight force; also, the dispensing with weather-strips on the jamb-casings, which strips are necessary in the pres-

ent mode of applying sashes to window-casings, for the purpose of confining the sashes in their places, and also the dispensing of parting-beads for separating the upper and lower sashes, so that they can move past each other.

By means of my invention the jamb-casings may be made each of a solid piece, it being only necessary to form grooves Q therein to receive the edges of the rack-plates, and their inner surfaces being left even and unbroken, save the sinking of the grooves.

I claim as new and desire to secure by Letters Patent—

1. The combination, with the sashes B B', of racks C C, pinions D D, and extension-plate *e*, constructed and arranged to operate as and for the purposes set forth.

2. Guiding the sashes in their vertical movements by means of the rack-plates C and grooves Q, substantially as above described.

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Witnesses:

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