

B. F. HARTMAN.
Sash-Balances.

No. 135,221.

Patented Jan. 28, 1873.

Fig. 2.

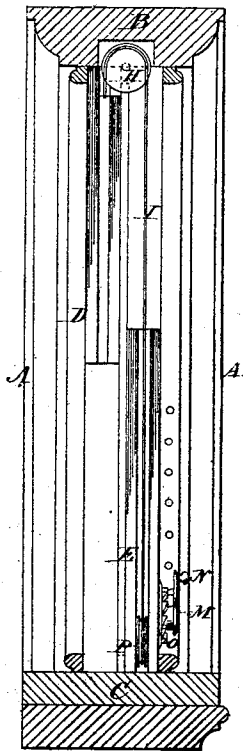


Fig. 1.

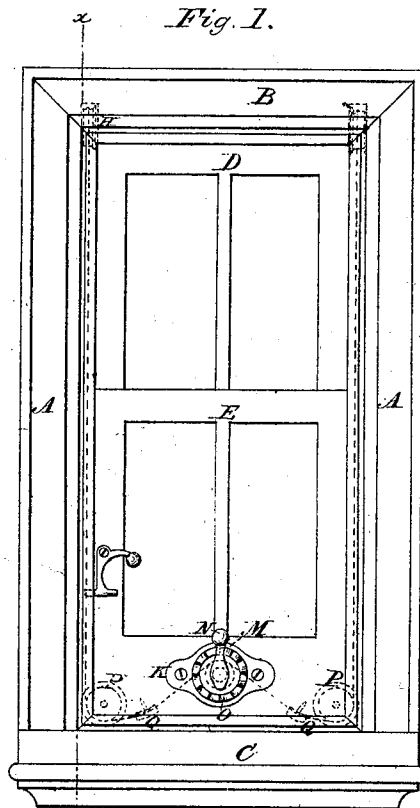


Fig. 3.

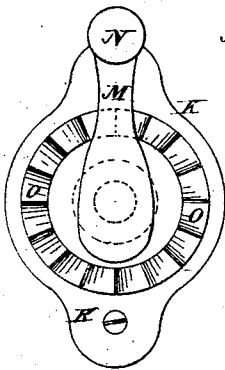


Fig. 4.

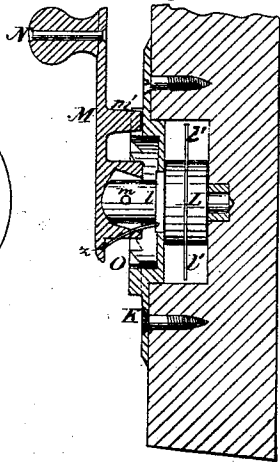


Fig. 5.

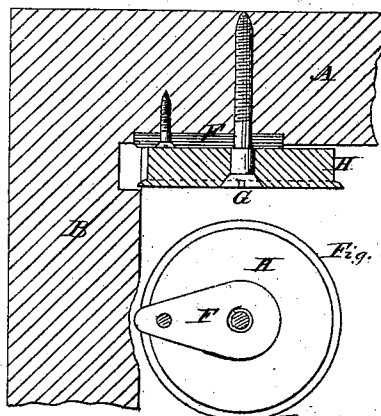
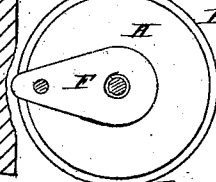


Fig. 6.



Witnesses:
Harry Coleman.
John R. Young

Inventor
B. F. Hartman, by
Prindle & Co. his Attys

UNITED STATES PATENT OFFICE.

BENJAMIN F. HARTMAN, OF PICKERING POST, CHARLESTOWN VILLAGE,
PENNSYLVANIA.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **135,221**, dated January 28, 1873.

To all whom it may concern:

Be it known that I, BENJ. F. HARTMAN, of Pickering Post, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Self-Balanced Sash; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is an elevation of the inner side of a window with the sash balanced by my improved apparatus. Fig. 2 is a vertical section of the same on line *x x* of Fig. 1. Fig. 3 is an enlarged front elevation of the device employed for shortening or lengthening the balancing tape or cord. Fig. 4 is a horizontal central section of the same as applied to a sash. Fig. 5 is a vertical section of a tape-pulley employed within an upper corner of the window-frame, and Fig. 6 is an elevation of the outer side of said pulley and of the metal washer used for a bearing beneath the same.

Letters of like name and kind refer to like parts in each of the figures.

My invention is an improvement upon a class of devices employed for enabling one sash of a window to counterbalance the other sash; and it consists in the peculiar construction of the device used for shortening or lengthening the balancing cord or tape, substantially as and for the purpose hereinafter specified.

In the annexed drawing, A and A represent the jambs, B the head, and C the sill of an ordinary window-frame, containing two sash, D and E, all of usual construction. Secured upon or within the inner face of the window-frame, at the transverse center and upper end of each jamb A, is a metal plate, F, (having the form shown in Fig. 6,) through the lower enlarged portion of which passes a screw, G, that serves as a pivotal bearing for and upon which revolves a grooved pulley, H. A cord or tape, I, attached to the upper end and outer side of the side rails of each sash, and passing over the pulleys H, causes the weight of one sash to balance the weight of the other sash, so that as one of said sash is raised the other will be lowered, and both will maintain their relative positions, unless purposely changed.

As thus arranged, it will be seen that it is impracticable to move one sash without changing the position of the opposite sash in a corresponding degree, by which means the use of the window for the purpose of ventilation is seriously interfered with.

To remedy this difficulty and enable an independent adjustment of each sash, I employ the following-described devices: Fitted into a corresponding recess cut in the inner face of the lower rail of the lower sash is a metal box or casing, K, within which is journaled a drum or spool, L, the axis of which is in a horizontal line and at a right angle to the line of said rail. Upon the projecting end *l* of the spool-shaft is fitted one end of a bar, M, the inner face of which is provided with a recess that, while closely embracing the sides of said shaft in one direction, is elongated in a line with said bar. A pin, *m*, passing through the bar M and the shaft *l* connects said parts loosely together, and acts as a pivotal bearing upon which said bar oscillates as its outer end is moved toward or from the sash. The outer end of the bar M is provided with a knob or stud, N, by means of which the former and the spool are rotated upon or around the shaft *l*, while upon the inner side of said bar is provided an angular tooth or projection, *m'*, that engages with a circular toothed rack, O, which is secured upon the face and forms part of the casing K. A spring, *z*, secured upon the shaft *l*, and bearing upon or against the short end of the bar M, presses the same outward and holds the tooth *m'* in engagement with the rack, so as to prevent motion of the spool in one direction, except when said tooth is purposely withdrawn from contact with said rack by pulling outward upon the knob N. Each of the cords or tapes I is now extended downward to the lower corners of the bottom sash, inward, and slightly upward around a suitable pulley, P, inserted within said sash, and has its end secured to or upon the spool L, so as to cause it to be wound thereon whenever said spool is revolved in the right direction. A circular metal disk, *l'*, secured upon and forming a part of the spool, divides longitudinally its periphery and prevents the cords or tapes from interfering with each other.

As thus arranged it will be seen that by turning the spool so as to wind thereon the cords or tapes the lower sash will be raised, after

which, by reversing the motion of said spool, said sash will be lowered to place without in any manner interfering with the position of the upper sash, and that by providing a sufficient length of cords, said upper sash can in like manner be lowered or raised independent of said lower sash.

It is intended that metal cord or tape shall be employed for connecting the sash, in which event the pulleys P may be omitted and glass guides Q, having the form shown in Fig. 1, substituted therefor.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

The means employed for adjusting the

available length of the connecting cords or tapes, consisting of the casing K provided with the toothed rack O, the spool L secured upon the shaft *l* and provided with the partition-disk *l'*, the loosely-pivoted bar M provided with the tooth or projection *m'*, and knob N, and the spring *z*, when said parts are constructed and combined substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of February, 1871.

BENJN. FRANKN. HARTMAN.

Witnesses:

FREDERIC LAMBERT,
LEWIS RAPP.