C. BISSMANN.
Sash-Balance.

No. 210,904. Patented Dec. 17, 1878.

Fig: 1.

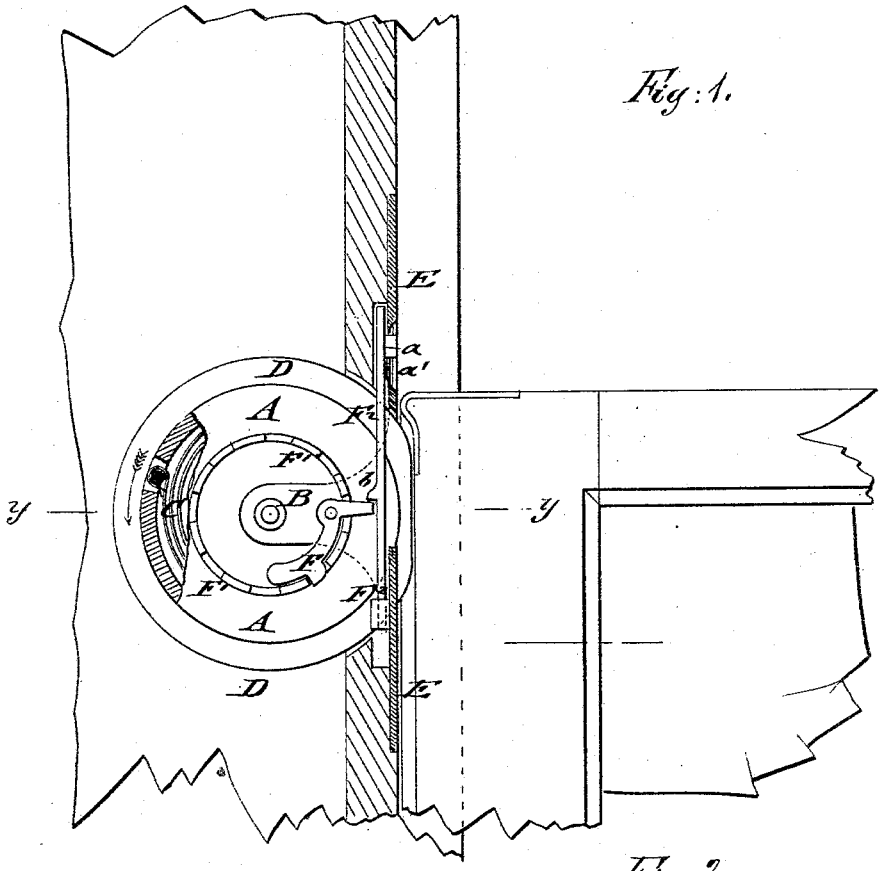
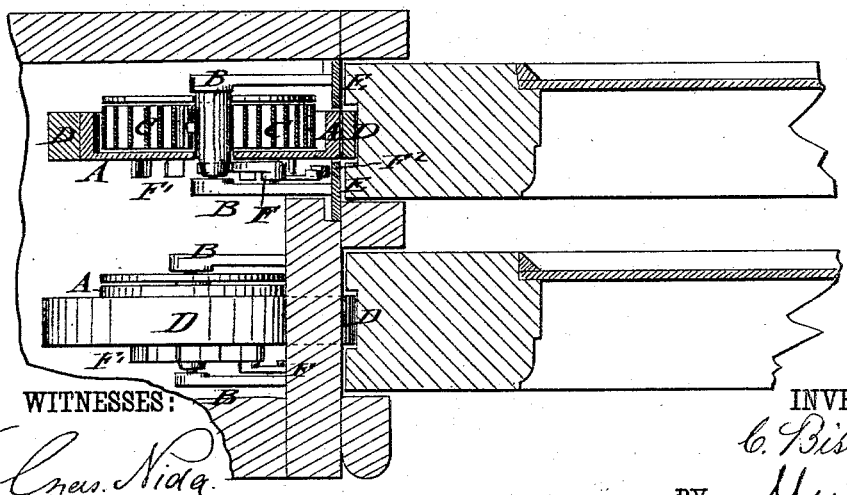


Fig: 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

CHRISTIAN BISSMANN, OF NEW YORK, N. Y.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **210,904**, dated December 17, 1878; application filed July 1, 1878.

To all whom it may concern:

Be it known that I, CHRISTIAN BISSMANN, of the city, county, and State of New York, have invented a new and Improved Sash-Balance, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a sectional front elevation of my improved sash-balance, and Fig. 2 shows a horizontal section of the window-casing with one balance in horizontal section on line *y y*, Fig. 1, and the other balance in top view.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish, in place of the common boxes, with cords, pulleys, and weights, for window-sashes, an improved spring-balance that takes up less space, and by which the raising and lowering of the sash are accomplished in easy and noiseless manner and the sash retained in any position without shaking or rattling.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

Referring to the drawings, A represents a cylindrical casing, that turns on a fixed shaft in supporting-arms B. The casing A is connected with the fixed shaft by a strong spiral band-spring, C, that is attached at the inner end to the shaft and at the outer end to the casing A. It is also provided with a circumferential ring, D, of soft rubber or other elastic material, that projects through a slot of the window-casing and bears on the grooved end of the sash. The balance is supported in a cavity of the window-casing at a level with the meeting-rails of the sash, the supporting-arms being secured to a slotted face-plate, E, that is screwed flush to the window-casing. The elastic ring is of such thickness as to bind sufficiently on the sash, so that the casing A is revolved by the friction therewith when the sash is raised or lowered.

The tension of the spring C is regulated in proportion to the size and weight of the sash by means of a pawl, F, that engages exterior ratchet-teeth F^1 of the casing. The pawl F and ratchet F^1 serve to lock the spring-casing until the sash is placed in position. The pawl is then disengaged by means of a releasing slide-piece, F^2, that is guided along the rear of the face-plate and pushed down by means of a stud or finger-rest, *a*, projecting through a slot, *a'*, of the face-plate. A rear projection or stud, *b*, of the slide-piece engages a forward-extending arm of pawl F, and withdraws the same from the teeth of the ratchet, so that the spring-balance is ready to act on the sash. The lifting of the sash is facilitated by the action of the spring-balances on the same, while the lowering of the sash rewinds the springs of the balances to the former degree of tension.

As a spring-balance is arranged at each of the upper corners of the sash, the joint action of the balances accelerates the raising of the sash and supports it at any desired point in the same manner as the balance-weights. When the tension of the spring is not sufficient for the sash, it may readily be readjusted by removing the sash and sash-balance and turning the spring-casing until the required degree of tension is obtained. The balance and sash are then replaced and the pawl disengaged from the ratchet of the casing by the slide-piece.

In case the rubber contact-ring wears out, either a new one may be placed around the casing, or the supporting arms or bearings may be made adjustable by a set-screw or in other manner from the outside, so that the rubber ring is brought closer to the sash, and thereby the former degree of efficacy re-established. The sash-balance is secured to the face-plate with all its parts, and the same readily placed in position or removed from the window-casing. The upper corner of the sash has a metal-lined projection or heel, that bears on the sash when in its lowermost position, while the lower corner is guided by an anti-friction roller along the casing. The spring-balances bind on the grooved end of the sash and hold it firmly in position, so as to prevent rattling and secure the easy and noiseless opening and closing of the window.

I am aware that it is not new in sash-balances to balance the sash by a coiled spring

in a revolving case provided with an external elastic friction-surface, or to use a pawl and ratchet; but

What I do claim as new and of my invention is—

The releasing slide-piece F^2, pushed down by a finger-rest, *a*, projecting through slot *a'* of the face-plate, in combination with the pawl F, having a forwardly-extending arm, as and for the purpose set forth.

CHRISTIAN BISSMANN.

Witnesses:

PAUL GOEPEL,

C. SEDGWICK.

1,000 wood.