(Model.)

M. J. SEILING.

Sash Balance.

No. 243,313. Patented June 21, 1881.

Fig 1

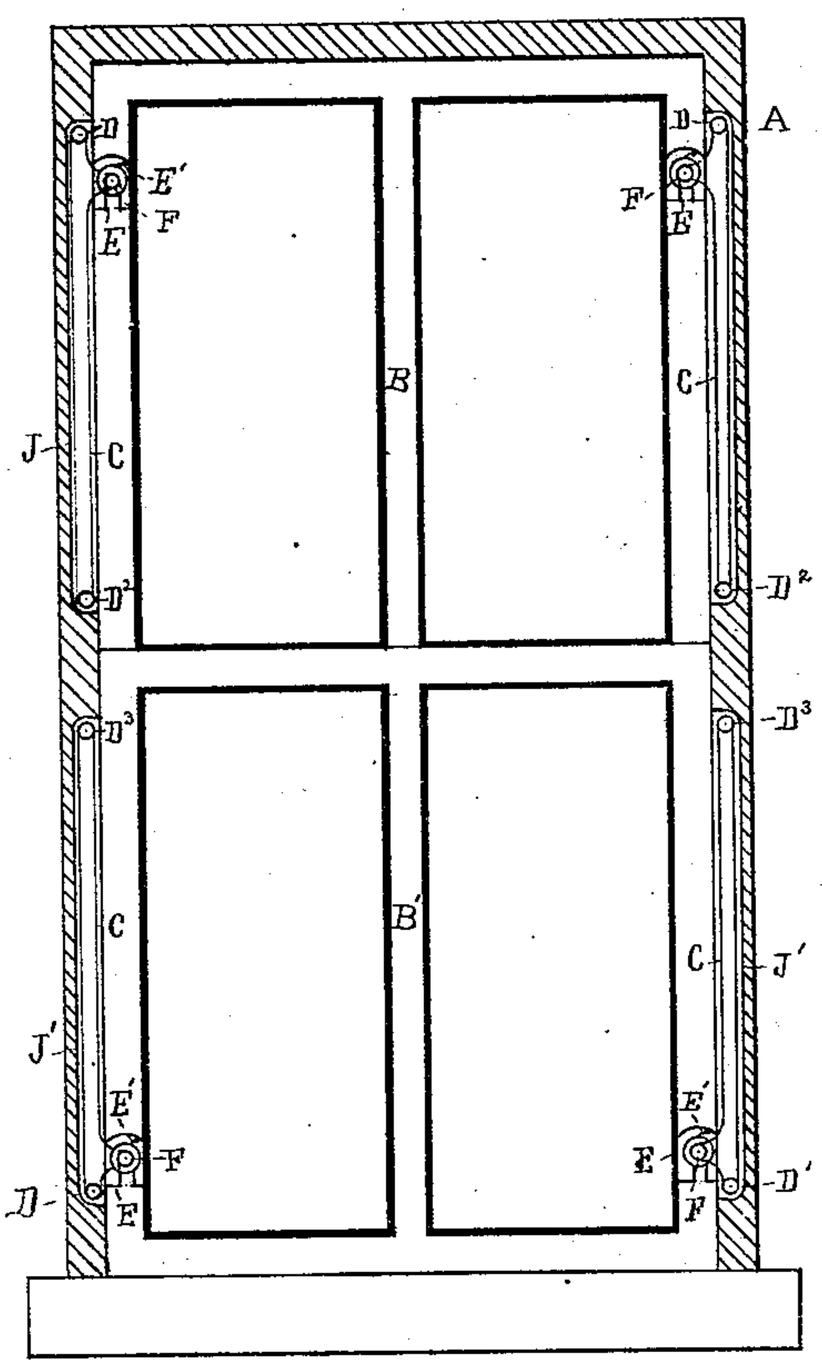


Fig 2

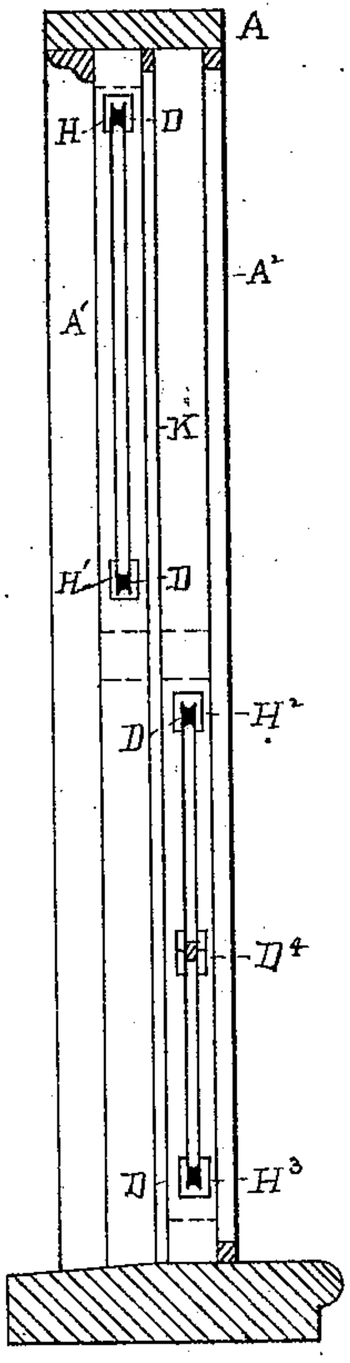


Fig 3

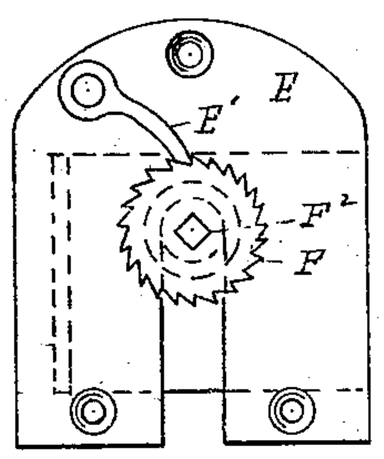


Fig 4

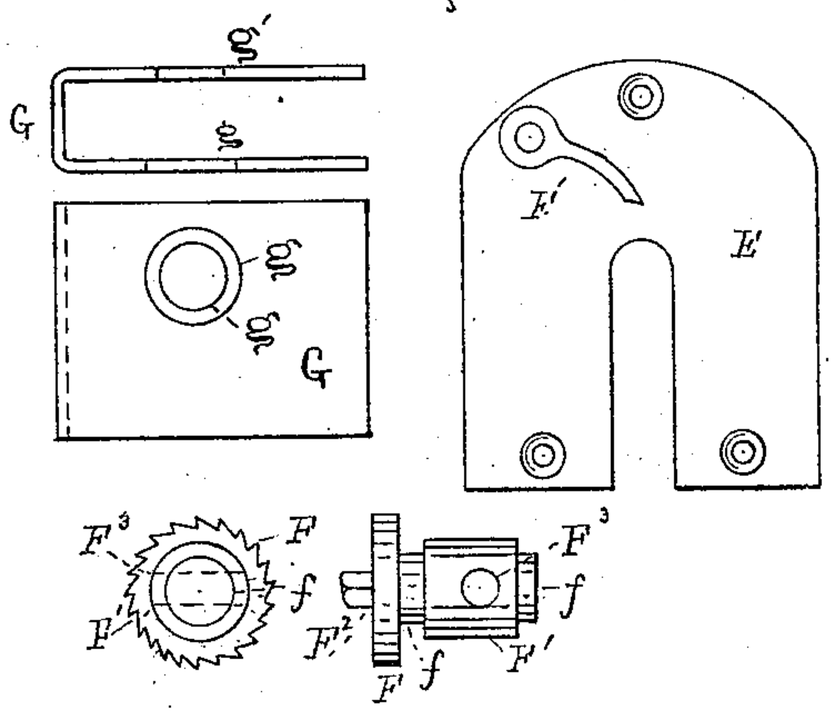
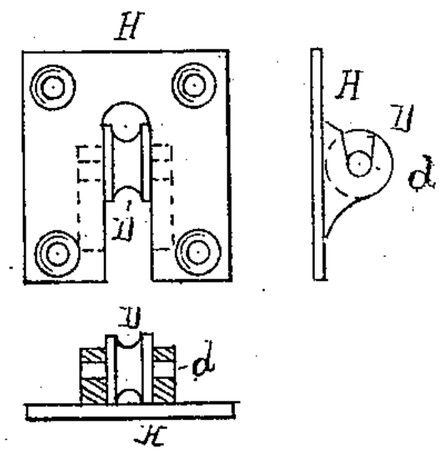


Fig 5



Witnesses

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UNITED STATES PATENT OFFICE.

MICHAEL J. SEILING, OF READING, PENNSYLVANIA.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 243,313, dated June 21, 1881.

Application filed March 2, 1881. (Model.)

To all whom it may concern:

Be it known that I, MICHAEL J. SEILING, of the city of Reading, county of Berks, State of Pennsylvania, have invented a new and useful Improvement in the Hanging of Window-Sashes, of which the following is a specification.

This invention relates more particularly to the case of window-sashes hung in plain frames unprovided with weight-boxes, and which are arranged to be adjustable without the use of weights or springs.

To enable those skilled in the art to make and use my invention, I will now describe the same, reference being had to the drawings herewith, in which similar figures denote similar parts.

Figure 1 is a front elevation of a window-frame fitted with my improvement, the bead-strip being removed to disclose the arrangement; Fig. 2, an internal elevation of the face of the frame, the sash being removed; Fig. 3, front elevation and plan of the case and cover of the friction-adjuster, full size; Fig. 4, detail views of the same, full size; Fig. 5, elevations and plan of the guide-rollers, full size.

A represents the frame, having guide-roller plates H H′ placed near the termination of the movement of the sash. D D′ are small rollers, dropped in the hooks of plates H before securing the same to the frame A; B, the upper, and B′ the lower, sash; C C, the cord; E, a bifurcated cover-plate for the frictional take-up; E′, pawl; F, ratchet; and F′ drum, having a hole, F^3, through which the cord C is passed and connected to the opposite end by tying tightly against the drum. F^2 is either a projected square head for a hollow key or a sunk square for a solid key. *f f′* are journals on the drum F′; G, an open-ended case for the reception of the drum F′, having in its rear side a journal-bearing, *g′*, and its front slotted at *g* to pass the drum F through. H H′ are bifurcated roller-plates for the guide-rollers D. J J′ are grooves, routed out of the sides of the frame A, between the plates H H′, of such depth that the cords C C shall not come in contact with each other, and yet be out of the way of the sash in its movements in the frame. K is a parting-strip, and A′ A^2 are retaining-beads.

The frictional take-up consists of four pieces—the case G, drum with ratchet F, cover E, with pawl E′. The cases G are let into the face of the sashes, one on each side, (very light sash may be operated with the apparatus on one side only,) to such a depth as will bring the cover-plate E (also let into the sash) flush with the face of the same. The drum with its ratchet is placed in the case G, and is so arranged that its journal *f*, between the drum and ratchet, shall project just outside of the front plate of the case G, when the bifurcated cover-plate E is slipped over the journal *f*, between the ratchet F and case G, and locks the drum F′ in the case and hides the same from view.

The frictional take-up is applied to the sash as follows: For the upper sash, B, within about four inches of the top; for the lower sash, B′, within about the same distance from the window-sill, the roller D being placed in the frame about three inches from the top, and the roller D′ the same distance from the sill, the rollers D^2 and D^3 being respectively placed about the same distance from the meeting-rails of the sash. A groove, J J′, is worked out of the sides of the frame, between the plates H H′ of the upper sash and the plates H^2 H^3 of the lower sash, that will permit the passage of the cord C over the rollers D without rubbing against the frame. The sash having been prepared by the letting in of the take-up cases, the cord C is passed over the top roller, D or D^3, then down to the roller D′ or D^2, and returned up around the same. The drum F′ being in the case G, the cord C is then passed through hole F^3, and both ends thereof tied tightly together, leaving the cases suspended upon the cords.

The sash are now placed in the frame and the take-up cases drawn to the recesses prepared for them and inserted in the same. The cover-plate E, slipped down over the journal *f*, and having its pawl E′ placed in contact with the ratchet F, is then screwed to the face of the sash. This having been done to both sides, the parting-strip K and the retaining-beads A^2 are put in place. Then with a hollow or solid key (as the arrangement F^2 for winding is either a projected or sunken square) tension is put upon the cords C C by the turning of the drum F′, which gives a bight in the cord and all the resistance required to hold the sash in any position in which it may be placed, the pawl E′ holding the drum at any

position by contact with the ratchet F as the cords elongate, the slack is taken up by an additional turn upon the drum F′. The cords for operating the sash are not required to be of the size usually adopted where weights are employed to balance the sash. For a sash of twelve pounds I find a cord of one-eighth inch in diameter ample. I prefer to use a flexible wire, preferably of copper.

This invention makes it possible to have the sashes of old window-frames that were built without weight-boxes to the same changed so as to be adjustable at a comparatively trifling expense, and without the dirt attendant upon alterations of old sash-frames to the modern style of hanging. It also reduces the expense of new window-frames, as the boxes for weights are dispensed with, and the cost of weights is also saved.

When the sashes are unusually heavy I introduce one or more roller-plates between the plates H^2 H^3, as shown at D^4. In this way, a turn of the cord being taken around each in succession, the heaviest sash may be operated without the use of weights or springs.

It will be noticed that I make no alteration of the structure of the frames or sashes, and that the cords, as well as the operating device, are hidden from view when the sash is in its normal position.

The painting of the sashes and frame can all be done before the sashes are hung, the plates H being applied to the frame, and the take-up to the sash.

I am aware that endless straps and cords have been used for the purpose of hanging sashes; but all which have come under my notice were so arranged as to expose the cords or straps, and thus disfigure the windows upon which the improvement was placed, and all required the sash to have grooves cut out of the edge of the same; and that ratchet mechanism had been used upon sash, balanced in pairs, for the purpose of manipulating the same. (See the patent of H. C. Brown, No. 7,359, May 14, 1850.) I therefore do not, broadly, claim the same, my claims being confined to the elements described when applied to single or independent sash.

Believing my invention to be new and useful, I claim as follows, to wit:

1. In a sash-balance, the combination of the friction take-up ratchet mechanism with the cord C and sash B, said cord passing from the drum F′ over pulleys or guides D D and returned to the same by grooves in the frame or sash, with both ends thereof secured to the drum F′, substantially as shown, and for the purpose described.

2. The combination of the case G, drum F′, and ratchet F with the sash B by the bifurcated cover-plate E, whereby the drum F′ and its ratchet F may be withdrawn for repairs or renewal of cord C without disturbing the position of the case G in the sash, substantially as described, and for the purpose specified.

MICHAEL J. SEILING.

Witnesses:

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THOMAS P. KINSEY.