W. COOPER.

SASH-BALANCE.

No. 178,360. Patented June 6, 1876.

Fig. 1.

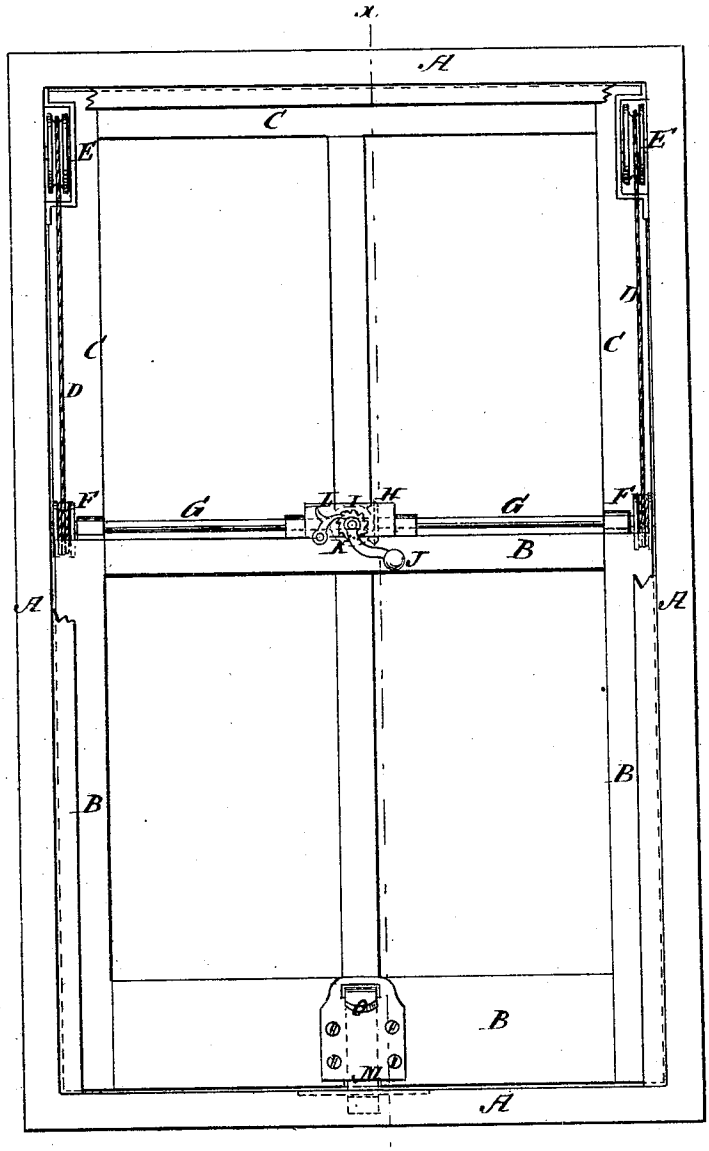
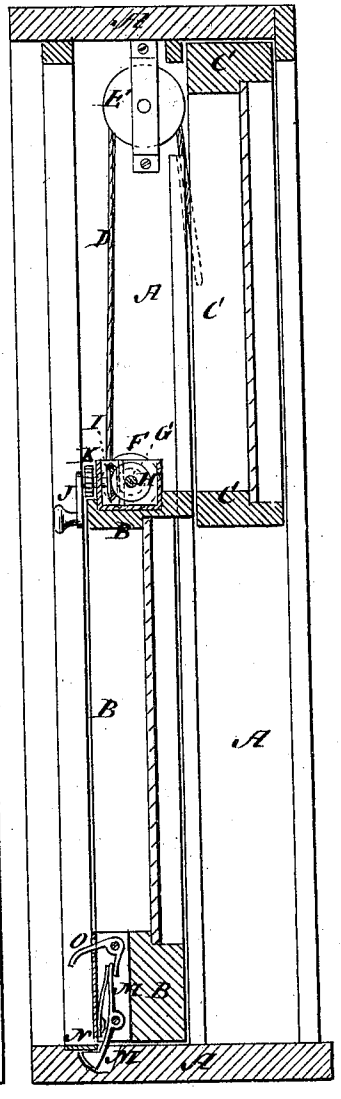


Fig. 2.



WITNESSES:

E. Wolff.

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM COOPER, OF STRATHROY, CANADA.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **178,360**, dated June 6, 1876; application filed April 18, 1876.

To all whom it may concern:

Be it known that I, WILLIAM COOPER, of Strathroy, in the county of Middlesex, province of Ontario, Dominion of Canada, have invented a new and useful Improvement in Sash-Balance, of which the following is a specification:

Figure 1 is a front view of a window to which my improved device has been attached, part of the casing being broken away to show the construction. Fig. 2 is a vertical section of the same taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved device for attachment to a window, to enable the sashes to be raised or lowered together or separately, as may be desired, and which shall be simple in construction and convenient in use.

The invention consists in the novel combination of the cords, the pulleys, the spools, the shaft, the bevel-gear wheels, the crank, and the ratchet and pawl with each other and with the casing and sashes of a window, as hereinafter more fully described and definitely claimed.

A represents the casing; B, the lower sash, and C the upper sash, about the construction of which there is nothing new. To the upper ends of the side bars of the upper sash C are attached the ends of two cords, D, which pass over two pulleys, E, pivoted to the casing A near its upper corners. The cords D pass down along the casing A, and their ends are attached to the spools F, which are attached to the ends of a rod, G. The rod G extends along the parting rail of the lower sash, and works in bearings attached to said sash. To the middle part of the rod G is attached a bevel-gear wheel, H, into the teeth of which mesh the teeth of a bevel-gear wheel, I, pivoted to a bearing attached to the parting-rail of the lower sash B, and to the pivot of which is attached the crank J, by which the device is operated. To the pivot of the gear-wheel I is also attached a ratchet-wheel, K, with the teeth of which engages a pawl, L, pivoted to the parting-rail of lower sash B. In a recess in the bottom rail of the lower sash B, although not forming a part of this invention, is pivoted a spring-catch, M, to catch upon a plate, N, attached to the lower part of the casing A, and with the upper end of which is connected a bent lever, O, which serves at the same time as a lever for unfastening the catch, and as a handle for raising the sash.

With this construction, by throwing back the pawl L the upper sash C will descend by its own weight, and may be secured in any desired position by throwing the pawl L again into gear with the ratchet-wheel K. The upper sash is raised by turning the crank J, to wind up the cords D. The lower sash can be raised by unfastening the catch M N O, and turning the crank J, and can be lowered by turning back the pawl L. By unfastening the catch M N O and turning the crank J, the two sashes may be raised and lowered together.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the cords D, the pulleys E, the spools F, the shaft G, the bevel-gear wheels H I, the crank J, and the ratchet and pawl K L, with each other, and with the casing and the sashes of a window, substantially as herein shown and described.

WILLIAM COOPER.

Witnesses:

THOMAS RAPLEY,

JAMES CHALMERS.