W. MILNER.

Sash-Balances.

No. 198,548. Patented Dec. 25, 1877.

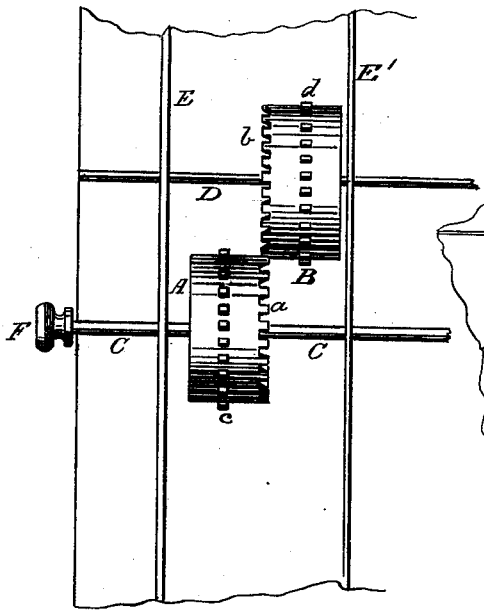

Fig. 1.

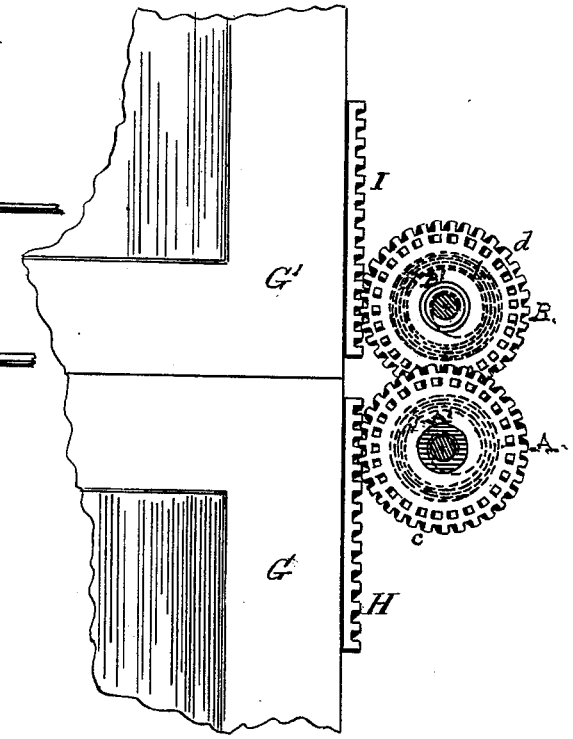

Fig. 2.

Attest:

Thomas Beech.
Philip J. Edmund.

Inventor:

William Milner
per atty.
Henry Beech

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM MILNER, OF STRATHROY, ONTARIO, CANADA.

IMPROVEMENT IN SASH-BALANCES.

Specification forming part of Letters Patent No. **198,548**, dated December 25, 1877; application filed April 11, 1877.

To all whom it may concern:

Be it known that I, WILLIAM MILNER, of the town of Strathroy, in the county of Middlesex, in the Province of Ontario, Canada, have invented certain new and useful Improvements on Sash-Balances; and I hereby declare that the following is full, clear, and exact description of the same, reference being had to the accompanying drawings, where—

Figure 1 is a side view of my invention. Fig. 2 is a front view of same.

My invention consists of a peculiar arrangement for raising and lowering sashes by means of a pair of circular boxes inclosing coil-springs, and so constructed and arranged as to act simultaneously by engaging with each other, or separately by means of separate axles, one of which is stationary, the other movable, as hereinafter more fully described and claimed.

A B are a pair of circular boxes, rotating freely on axles C D. The upper one of these axles, D, is attached rigidly to the sides of frame E E′, in which they are disposed. The lower one, C, may be moved backward and forward in its sockets by pulling or pushing the knob F, as will be explained farther on.

Reciprocity of motion between the two circular boxes A B is secured by means of their cogged rims *a b* meshing into one another, as shown in Fig. 1. Each of these boxes is also encircled by another series of cogs, *c d*, for the following purpose: On the outer sides of the sashes G G′ are attached the racks H I, so that through openings in the side of frame E the cogs *c d* on the circular boxes will mesh into the said racks.

The action of this simple form of mechanism is as follows: On raising the bottom sash G the rack H thereon engages with the annularly-disposed cogs *c*, and causes the circular box A to revolve on its stationary axle C. At the same time the teeth *a*, surrounding the outer edge of A, engage with the teeth similarly disposed round the upper circular box B, causing the latter also to revolve in the opposite direction, and as it so revolves the cogs *d* on its surface engage with the teeth of rack I, and cause it to descend, carrying with it the upper sash G′, to which it is attached, as already explained.

By this reciprocal motion it will be seen that on raising or lowering either of the sashes an opposite motion is transmitted to the other sash in precisely the same degree.

A and B have been described as circular boxes instead of wheels, for this reason: each of these contains inside a strong coil-spring, A′ B′, one end of which is attached to inner side of box, and the other to the axle, round which it is wound. These springs are wound in this manner so as to carry the weight of the sash in the first place to lessen the power required in raising or lowering the sashes when both the circular boxes are engaged by the natural power exerted by these coil-springs, and, in the second place, by relieving the weight to assist in raising or lowering either of the sashes separately. This separation is effected by pulling out the knob F on side of frame, drawing out with it the axle C, and throwing the circular boxes A B out of gear with each other, but still engaged with the racks H I.

In place of the outer cogs *c d* and racks H I, a strap or cord in each case may be used, one end thereof being attached to the circular box and wound round it, while the other end is attached to the sash.

I claim as my invention—

The two cogged wheels or circular boxes A B, inclosing coil-springs A′ B′, having separate horizontal axles or journals C D, one of these axles being stationary, and the other having a horizontal movement, carrying with it the wheel or circular box, by means of which the two wheels A B can be attached or detached, causing the upper and lower window-sash to act simultaneously, substantially as shown and described, for the purpose set forth.

WILLIAM MILNER.

Witnesses:
HENRY BEECH,
THOMAS BEECH.