(No Model.)

A. KARUTZ.

SASH BALANCE.

No. 301,723. Patented July 8, 1884.

Fig. 4.

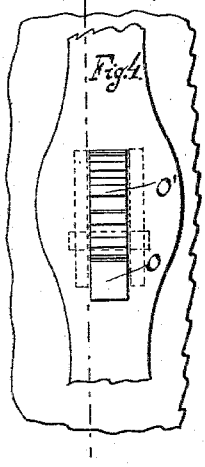


Fig. 1.

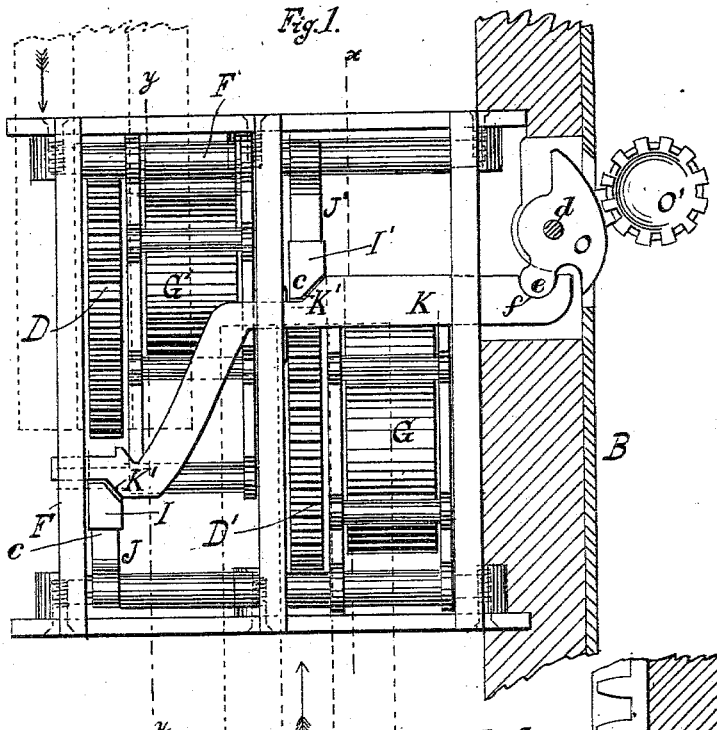


Fig. 2.

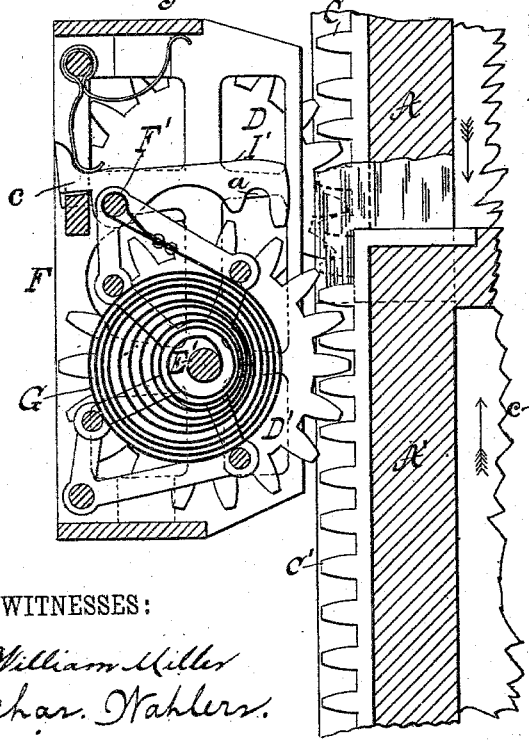
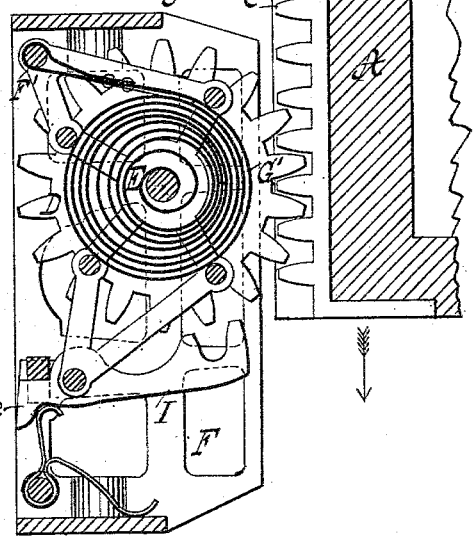


Fig. 3.



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ALBERT KARUTZ, OF BROOKLYN, NEW YORK.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 301,723, dated July 8, 1884.

Application filed March 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT KARUTZ, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Window-Sash Operators, of which the following is a specification.

My invention relates to apparatus for operating window-sashes; and it consists in the novel construction and arrangement of parts hereinafter described, whereby I obtain an apparatus which is very simple and very effective in operation.

In the accompanying drawings, Figure 1 is a rear view of my apparatus, showing also a portion of the edges of two sashes. Fig. 2 is a cross-section on the line *x x*, Fig. 1. Fig. 3 is a similar section on the line *y y*, Fig. 1. Fig. 4 is a detail view.

Similar letters indicate corresponding parts.

The letters A A′ designate a portion of each of two sashes, which are arranged in the usual relation to each other in the window-frame B, and each of which is provided with a rack, C or C′, on one of the vertical edges. These racks C C′ extend the entire length of the sashes, and they engage with rotary spur-wheels D D′, which are arranged in the plane of the sashes on horizontal arbors E E′, having their bearings in a frame, F, of the window-casing.

On the wheel-arbors E E′ are arranged helical springs G G′—one in a reverse direction to the other—these springs being attached to the arbors at one end and to a fixed bar, F′, of the supporting-frame at the other end, and the direction thereof being such in relation to the sashes A A′ that the raising of the lower sash and the lowering of the upper sash has the effect of winding the springs, respectively, on the arbors, due to the turning of the spur-wheels D D′ by the racks of the sashes; and consequently the springs act on the sashes with a tendency to balance them. In order to adapt the spur-wheels D D′ to the position of the sashes when closed, the wheel-arbors E E′ are arranged in different planes or positions; but it is evident that the sashes may be adapted to the position of the wheels.

To the inner side of the supporting-frame F are pivoted two lever-pawls, I I′, arranged, respectively, below and above the spur-wheels D D′, and capable of swinging in a vertical plane, each lever-pawl having its free end constructed with a recess, *a*, to receive one of the teeth of the spur-wheel to lock the latter against rotation, and thereby hold the sash stationary. The pivot-pin or axis of each lever-pawl is at a short distance from one end thereof, to provide a tail-piece, *c*, to each pawl, and the pawls are acted upon, respectively, by springs J J′, which act to throw the recessed ends of the pawls in engagement with the spur-wheels. A bent bar, K, extends across the supporting-frame, under and over the tail-pieces *c* of the pawls I′ and I, respectively, and is provided with two inclined planes, K′, so that by sliding the bar longitudinally its inclined planes come in contact with the tail-pieces *c* simultaneously and swing the lever-pawls on their axes, thereby disengaging their recessed ends from the spur-wheels, whereby the latter are free to rotate. The bent bar K is slid longitudinally by means of a lever, O, pivoted at *d*, and loosely engaging the bar by having a lug, *e*, resting in a recess, *f*, in the bar, the lever O having a projecting handle or finger-piece, O′, by which to swing it on its pivot *d* to slide the bar. This combination provides novel, simple, and efficient means for balancing the sashes and holding them in any adjusted position; and, further, by the construction claimed a single operating-lever operates both locking-pawls simultaneously, to permit movement of both sashes at the same time, if such be desirable, while the necessary spur-wheels, springs, pawls, and locking devices are combined in a single casing for convenient application to the desired position.

I am aware that a sash-balance has been composed of a case containing a spur-wheel to engage a rack on the sash, the shaft of the wheel being connected with a helical spring, and a spring-impelled pin being arranged to engage any one of an annular row of perforations in the wheels for locking the sash in its adjusted position.

I am also aware that a sash-balance has been composed of a casing containing two spur-wheels to engage racks on two sashes, the shaft of each wheel being connected with a helical spring, and each wheel being locked in position by an independent sliding bar having an attached stud to engage the spurs of

the wheel, such bar being thrown into engagement with the spurs by a spring. Such features, therefore, are not broadly claimed by me.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the rotating spur-wheel arranged in the plane of the sash on a horizontal arbor, the helical spring on the arbor, and the sash having the rack, of the lever-pawl pivoted between its ends to form the tail-piece *c*, and having its other end constructed to engage the teeth of the spur-wheel, and the longitudinally-sliding bar K, having an inclined plane, K′, for acting on the tail-piece of the lever-pawl, to swing the latter on its pivot out of engagement with the spur-wheel, substantially as described.

2. The combination, with the two rotating spur-wheels arranged on horizontal arbors, the helical springs on the arbors in reverse directions, and the sashes having racks, of the two lever-pawls, pivoted intermediate their ends to form the tail-pieces *c c*, and the longitudinally-sliding bar K, having the inclined planes K′ K′, for acting on the tail-pieces of the lever-pawls to swing them on their pivots from engagement with the spur-wheels, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

ALBERT KARUTZ. [L. S.]

Witnesses:
W. HAUFF,
CHAS. WAHLERS.