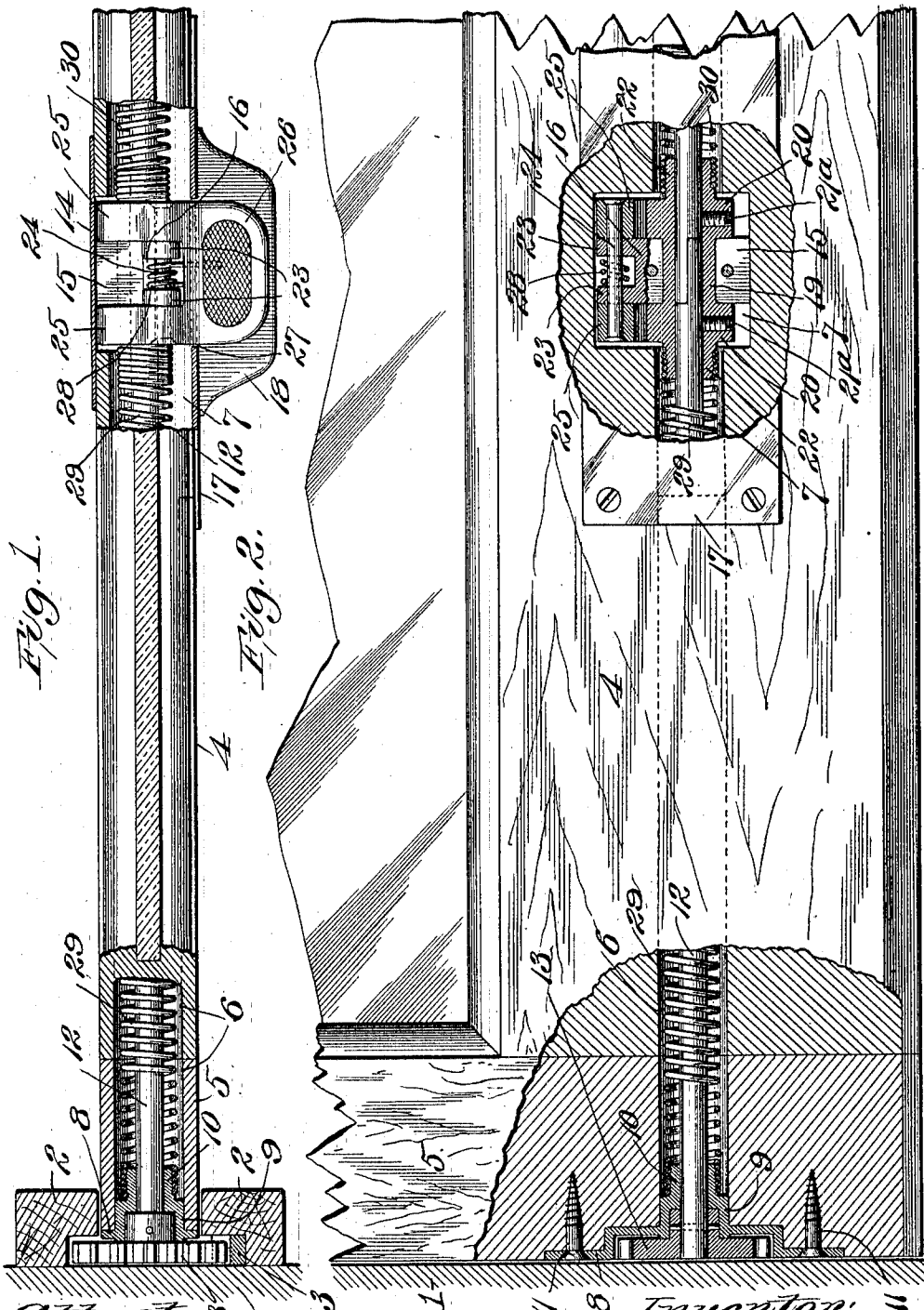


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WINDOW SASH BALANCE.
APPLICATION FILED DEC. 18, 1911.

Patented Apr. 22, 1913.

2 SHEETS—SHEET 1.

1,059,476.



Attest:
W. H. Scott.
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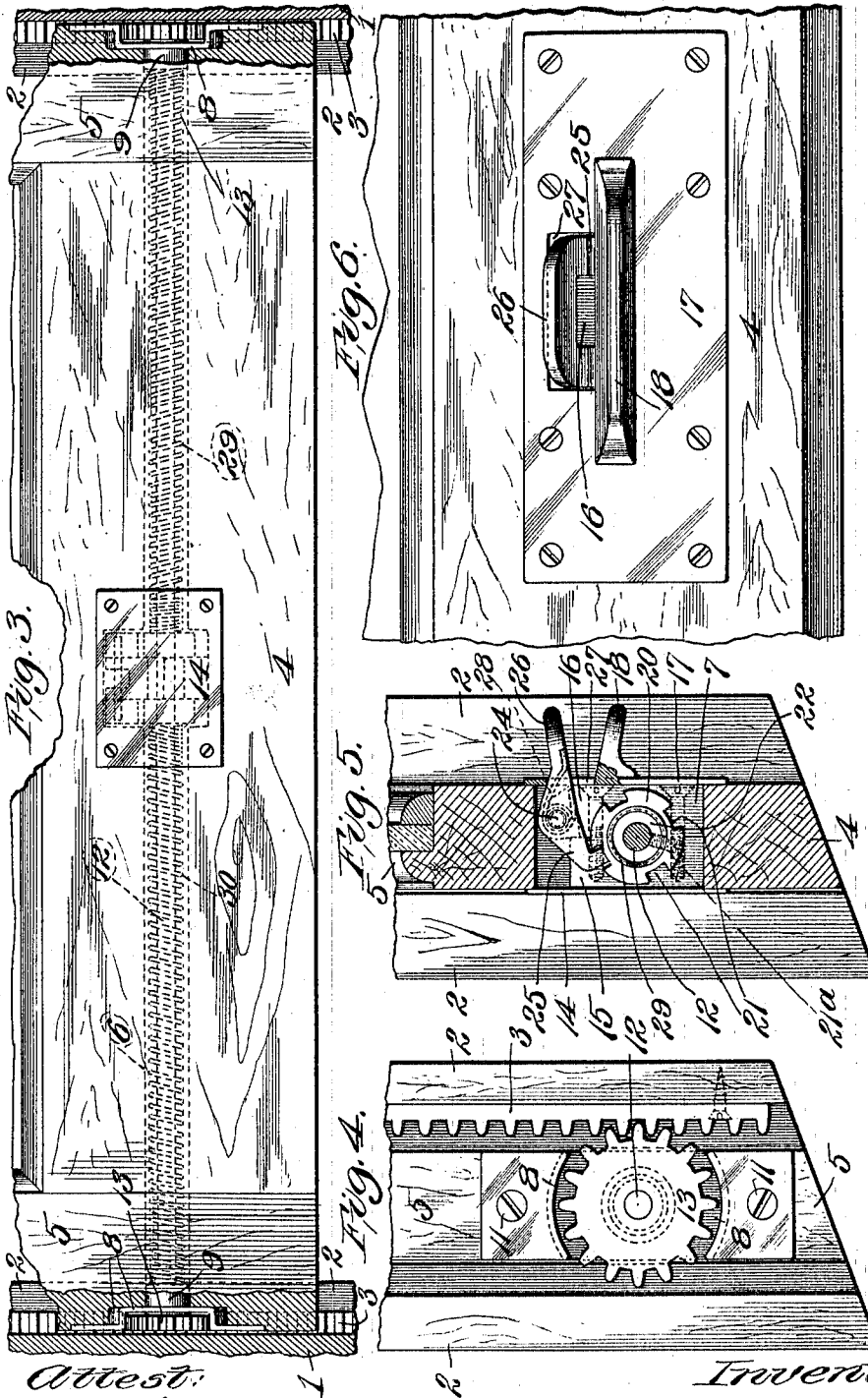
Inventor:
Arthur E. Lehmann,
by Higdon Longan
Attys.

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UNITED STATES PATENT OFFICE.

ARTHUR E. LEHMANN, OF ST. CHARLES, MISSOURI, ASSIGNOR OF ONE-HALF TO
ERICH LEISTNER, OF ST. CHARLES, MISSOURI.

WINDOW-SASH BALANCE.

1,059,476.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed December 18, 1911. Serial No. 666,424.

To all whom it may concern:

Be it known that I, ARTHUR E. LEHMANN, a citizen of the United States, and resident of St. Charles, St. Charles county, Missouri, have invented certain new and useful Improvements in Window-Sash Balances, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in window sash balances, and the object of my invention is to construct an improved sash balancing mechanism in such manner as to dispense with the ordinary balancing weights and the attendant hollow jamb.

With the above purposes in view my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawings, in which—

Figure 1 is a sectional plan of a portion of a sash and a portion of a jamb equipped with my improved sash balance and lock; Fig. 2 is an inside face elevation of a sash with parts broken away to illustrate the mechanism embodying my invention; Fig. 3 is an outside elevation of the lower portion of a sash and jambs, certain portions being broken away; and Fig. 4 is an end elevation of the lower portions of a sash and a pair of stops; Fig. 5 is a sectional elevation illustrating the means whereby the sash is locked; and Fig. 6 is an inside face view illustrating the hand-hold and locking lever.

Referring by numerals to the accompanying drawings: 1—1 designate the jambs of the window frame. 2 designates the window stops arranged in pairs on the face of each jamb, each inside stop carrying a rack 3.

4 designates the bottom rail of the window sash and 5—5 the stiles of the window sash.

6 designates a horizontal bore which extends through the bottom rail and through the stiles of the sash and 7 designates an opening extended transversely through the central portion of the bottom rail.

8 designates housings secured in counter-sinks formed in the outside faces of the stiles, and formed integral with said housings are the bearings 9 and reduced and threaded extensions 10, the threads on the two extensions being opposed to each other, one being a right hand thread and the other

a left hand thread, the housings being secured against rotation by means of screws 11.

12 designates a sectional shaft which extends through the bore 6 and is mounted for rotation in the bearings 9. Secured to rotate with the sectional shaft 12 at each of its ends is a pinion 13 meshing with the racks 3.

14 designates a plate arranged to be secured on the outside face of the bottom rail to serve as a closure for the opening 7, and secured to and preferably formed integral therewith is a bearing 15, and secured to the bearing 15 is a cap 16.

17 designates an escutcheon which is secured to the inside face of the bottom rail and arranged to close the opening 7. Carried by and preferably formed integral with the escutcheon is a hand-hold 18 serving as a means to manipulate the sash.

19 designates a sleeve which embraces the sectional shaft 12 at the central portion of the sash. The sleeve is provided with annular collars 20 which are notched at intervals as shown at 21 in Fig. 5. The sleeve 19 is secured to rotate, in the bearing 15 and cap 16, with the sectional shaft 12 by means of set screws 21^a. At each end of the sleeve there is a threaded extension 22, the threads on the two extensions being opposed to each other, one being a right hand thread and the other a left hand thread.

On the top face of the cap 16 there are a pair of perforated ears 23 in which is rotatably mounted a pin 24 which carries the detents 25 having an integral handle 26 which projects through the slot 27 formed in the escutcheon immediately above the hand-hold 18.

28 designates a coil spring which is wrapped around the pin 24 between the ears 23 with one of its ends resting on top of the cap 16 and its opposite end acting on the handle 26 as required to normally seat the detents 25 in a pair of the notches 21 of the sleeve 19.

29 and 30 designate coil springs of opposite windings and each of said springs is secured by being screwed on the extensions 10 of the fixed housings 8 and the extensions 22 of the rotatable sleeve 19.

The practical operation of my improved sash balance and lock is as follows: Assuming the sash to be down, that is the window closed, and there being a tension on the

10 springs sufficient to rotate the pinions 13 and cause them to ride upwardly on the racks 3 and carry the sash with them against the action of gravity or the weight of the sash, the operator depresses the handle 26 thereby moving the detents out of the notches in the sleeve 19 which permits of a rotation of the sleeve, by the action of the springs 29 and 30 thereon, the springs acting on the sleeve and the sleeve being secured to the sectional shaft 12 each of the pinions 13 are rotated and caused to ride upwardly on the racks 3 and move or carry the sash upwardly.

15 In the manner just described the springs serve as a means for assisting the elevation of the sash and the detents serve as a means for holding the sash in any desired position against the action of the springs. In some cases, however, I prefer to have the tensions on the springs 29 and 30 sufficient only to overcome the gravity or weight of the sash so that, without a locking means, the springs will be of sufficient strength to hold the sash in any desired position.

20 The parts entering into the construction of my improved balance are of simple and inexpensive construction, are readily assembled and easily applied to ordinary windows and especially windows not provided with hollow jambs arranged to receive the ordinary sash balancing weights.

I claim:

1. In a sash balancing mechanism, a pair of racks each secured to a window frame, a bearing secured adjacent each side margin of the window sash, a sectional shaft mounted for rotation in said bearings, a sleeve for connecting the inner ends of the section of said shaft, means for connecting the sleeve to rotate with the shaft, threaded extensions formed on said bearings and on said sleeve, a pair of coil springs oppositely wound relative to each other and connecting said sleeve with said bearings, said springs being screwed to said extensions, and a pinion secured to the outer end of each of the sections of said shaft and arranged to mesh with said racks.

2. In a sash balancing mechanism, a pair of racks each secured to a window frame, a bearing secured adjacent each side margin of the window sash, a sectional shaft mounted for rotation in said bearings, a sleeve for connecting the inner ends of the sections of said shaft, means for connecting the sleeve to rotate with the shaft, threaded extensions formed on said bearings and on said sleeve, a pair of coil springs oppositely wound relative to each other and connecting said sleeve with said bearings, said springs being screwed to said extensions, a pinion secured to the outer end of each of the sections of said shaft and arranged to mesh with said racks, and means for engagement with said sleeve in order to hold the sectional shaft and pinions against rotation, for the purposes stated.

3. In a sash balancing mechanism, a pair of window stops, a rack secured to each stop, a window sash having a hollow rail, a fixed bearing at each end of the hollow rail, a fixed bearing intermediate the ends of the rail, a sectional shaft extended through said rail, a sleeve for uniting the inner ends of said sections of shaft, said sleeve being journaled in said intermediate bearing, means for securing said sleeve to rotate with said shaft, threaded extensions carried by the fixed bearings at the end of the rail, threaded extensions formed on said sleeve, oppositely wound coil springs each having one of their ends screwed to said fixed bearings at the ends of the rail and at their opposite ends to the threaded extensions of the sleeve, pinions fixed to rotate with the sectional shaft and mounted for rotation in said fixed bearings at the end of the rail, a ratchet face formed on said sleeve, and a dog carried by the sash arranged for engagement with said ratchet face.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

ARTHUR E. LEHMANN.

Witnesses:

A. E. HUCKER,
ROBT. W. SCHMOLDT.