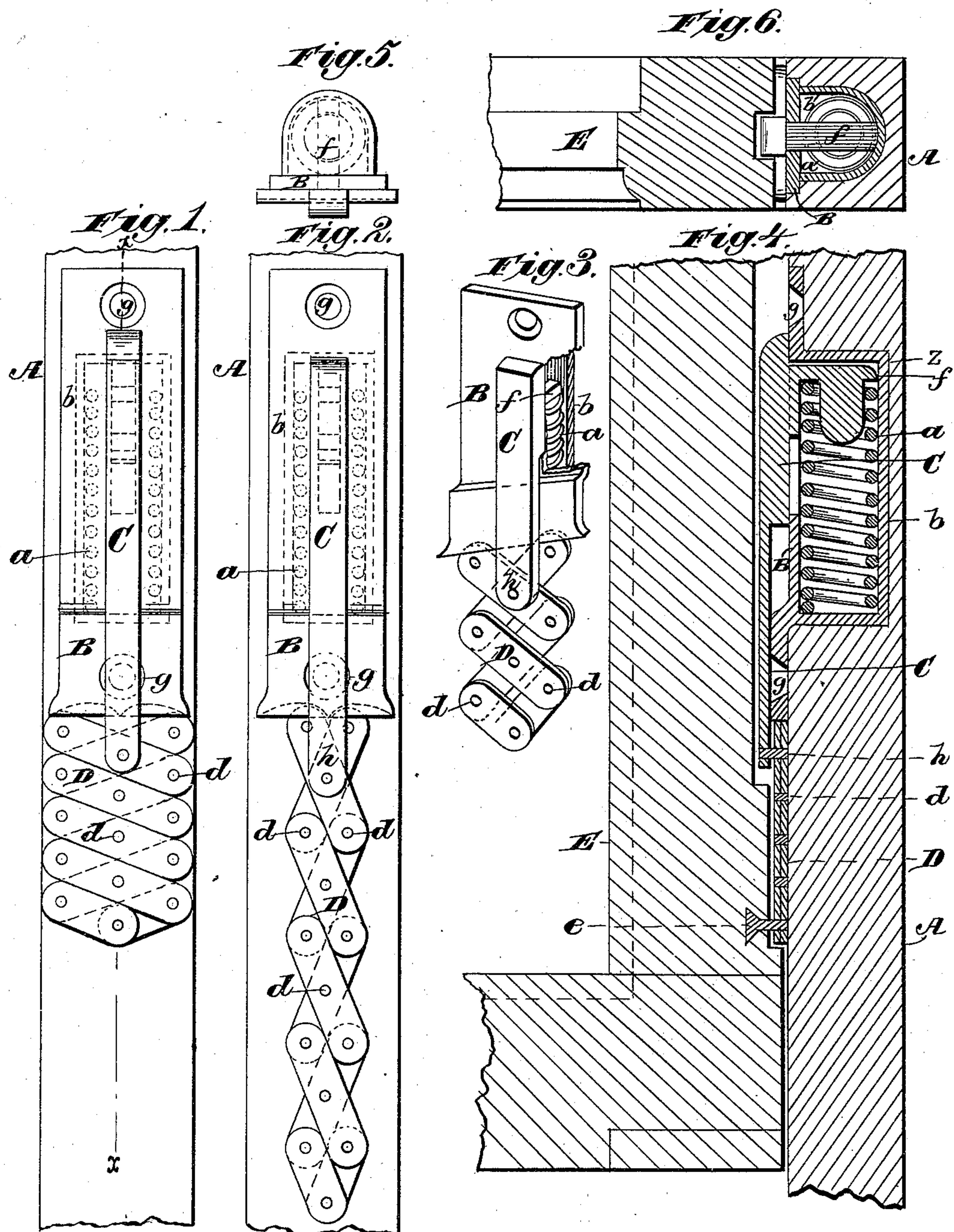


(No Model.)

W. H. KING.
SASH BALANCE.

No. 308,773.

Patented Dec. 2, 1884.



Witnesses.

Robert Everett.

J. A. Rutherford

Inventor.

W. Haskell King.

By

James L. Norris.

Atty.

UNITED STATES PATENT OFFICE.

W. HASKELL KING, OF ATHOL, MASSACHUSETTS.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 308,773, dated December 2, 1884.

Application filed March 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, W. HASKELL KING, a citizen of the United States, residing at Athol, in the State of Massachusetts, have invented 5 new and useful Improvements in Sash-Balances, of which the following is a specification.

This invention relates to sash balancing or suspension devices, and has for its object to dispense with the cord, pulley, and weight, 10 or other devices customarily employed; and the objects of the invention are, first, to provide means for balancing window-sashes, which can be applied to any window, whether old or new, and does not require the use of a box 15 frame or casing; second, to produce a balancing device for windows and other objects which cannot be disarranged by constant and violent usage; and, third, to obtain a maximum or long movement of the sash with a slight 20 movement of a spring that acts upon the devices connected directly with the sash, thereby avoiding the liability of the spring becoming impaired by long usage.

The invention consists, essentially, in the 25 combination, with a window-sash or other sliding frame or body, of a system of lazy-tongs or jointed levers which are connected with the sash, the window frame or casing, and a sliding bar that is arranged in co-operative 30 relation to a spring seated in a suitable box or chamber in the window-casing. The movement of the levers caused by the movement of the sash in its frame will cause the compression of the spring through the intervention of the 35 sliding bar, and as soon as the sash is released or unlocked the spring will effect a reverse movement of said lazy-tongs and cause the sash to be automatically returned into its normal position.

40 The invention also consists in certain details of construction and arrangement, which will be hereinafter more fully described, and then set forth in the claims.

In the accompanying drawings, Figure 1 is 45 a face view of the sash balancing or suspending device attached to a portion of the window part, certain of the internal parts being shown in dotted lines. Fig. 2 is a similar view showing the lazy-tongs expanded or opened 50 and the spring acting thereon in a compressed state. Fig. 3 is a detail perspective view,

partly in section, showing the lazy-tongs in a somewhat expanded state. Fig. 4 is a vertical longitudinal section exhibiting my invention applied to a window and its frame, the 55 section being taken on the line *xx* of Fig. 1. Fig. 5 is a plan or top view showing the spring-casing and sliding bar connected with the lazy-tongs. Fig. 6 is a transverse section 60 taken through the casing, the spring, and sliding bar, and showing the arrangement of these parts relatively to the window and its casing.

The letter A designates the casing or frame of a window, in which is fitted the sash E, adapted to slide within said frame. 65

It may be stated that as the invention is specially designed for balancing or suspending window-sashes, the latter term will be used in the following description; but it is obvious that I may employ the system of balancing or 70 suspension devised by me to many other sliding bodies—such as gates, dumb-waiters, &c.—without departing from the spirit of my invention.

A system of lazy-tongs or jointed levers, D, 75 is arranged at the side of the window-casing, or in the path in which the sash E slides, and is connected to said casing by suitable pins or rivets passed through the first or upper pair of levers. The levers themselves are jointed 80 together by rivets or pins *d* in the customary manner, and the lower pair of levers is secured to the edges of the window-sash by means of a pin or screw, *e*, as is shown in Fig. 4. To the upper pair of levers is also attached a ver- 85 tical bar, C, the point of attachment being designated by the letter *h* in Figs. 1 to 3, inclusive. This bar C is free to slide up and down, and in order to accommodate the same the edge of the sash is generally provided with 90 a vertical groove, as is shown in Figs. 4 and 6. A face-plate, B, applied to the window-frame, is formed or provided with a cylindrical shell or socket, *b*, which is seated in a recess or chamber provided in the window-frame, and 95 suitable screws passed through holes *g* in said face-plate B serve to hold the latter and the socket in position. The face-plate is shaped to properly guide the movement of the sliding bar C, and also has a vertical slot for the pas- 100 sage into the shell or socket *b* of a hook-shaped or horizontal top extension, *f*, of said slid-

ing bar. A spiral or other spring, *a*, is seated in the shell or socket *b*, and the extension or hook *f* of the sliding bar bears upon or enters the top of said spring, as is clearly shown in Fig. 4.

It is evident that when the sash is moved within its frame in the proper direction the lazy-tongs connected therewith are distended or opened out in the manner shown in Fig. 2, and that the sliding bar, also connected with said lazy-tongs, is moved upon the face-plate, so as to cause the hook or horizontal extension thereof to compress the spring in the socket, as is fully represented in Fig. 2. It is also obvious that a considerable movement of the window-sash can take place without effecting a further movement of the sliding bar and compression of the spring, because as soon as said bar has reached the limit of its movement on the face-plate the opening-out action of the lazy-tongs will continue until the limit of the movement of the sash has been reached. In this manner it follows that no matter how violently the sash is moved the operative parts are not disarranged or broken, and the compression or movement of the spring can only take place during the initial movement of the sash. It is obvious that the latter is held in a locked condition when the parts are in the position shown in Fig. 2; and when the locking device is released or pressure upon the sash is removed the expansive force of the spring, acting upon the sliding bar, will cause the lazy-tongs to contract or close together, thus returning the parts to their normal positions.

I prefer to arrange the lazy-tongs, sliding bar, and spring in the manner herein represented; but obviously I do not confine myself to any particular spring, as an india-rubber or elliptic or plate spring may be used instead

of the spiral or coiled spring shown in the drawings. Furthermore the spring, instead of acting to close the lazy-tongs, may be so arranged as to extend or open out the lazy-tongs, instead of contracting the same.

I am aware that the lazy-tongs motion has heretofore been used in many appliances and machines—such as in grates, elevators for fire-ladders, drop-lights, and extension-gasaliers. Therefore I confine myself to the adaptation of said lazy-tongs to operating window-sashes or other sliding frames or bodies arranged in an analogous manner thereto.

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

1. The combination of the lazy-tongs, a frame connected with one end of the tongs, and a spring support for the other ends of the tongs, the combination being and acting substantially as and for the purposes described.

2. The combination of a box or case, a spring seated therein, a sliding bar acted on by the spring, and the lazy-tongs connected with one end of the bar, substantially as and for the purpose described.

3. The combination of the face-plate having a socket or shell, the spring seated in the latter, the sliding bar moving on said face-plate and bearing upon the spring, and the lazy-tongs or jointed levers connected with the sliding bar, with a window-sash and a frame or casing having the ends of the lazy-tongs secured thereto, substantially as described.

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

W. HASKELL KING.

Witnesses:

JAMES L. NORRIS,

J. A. RUTHERFORD.