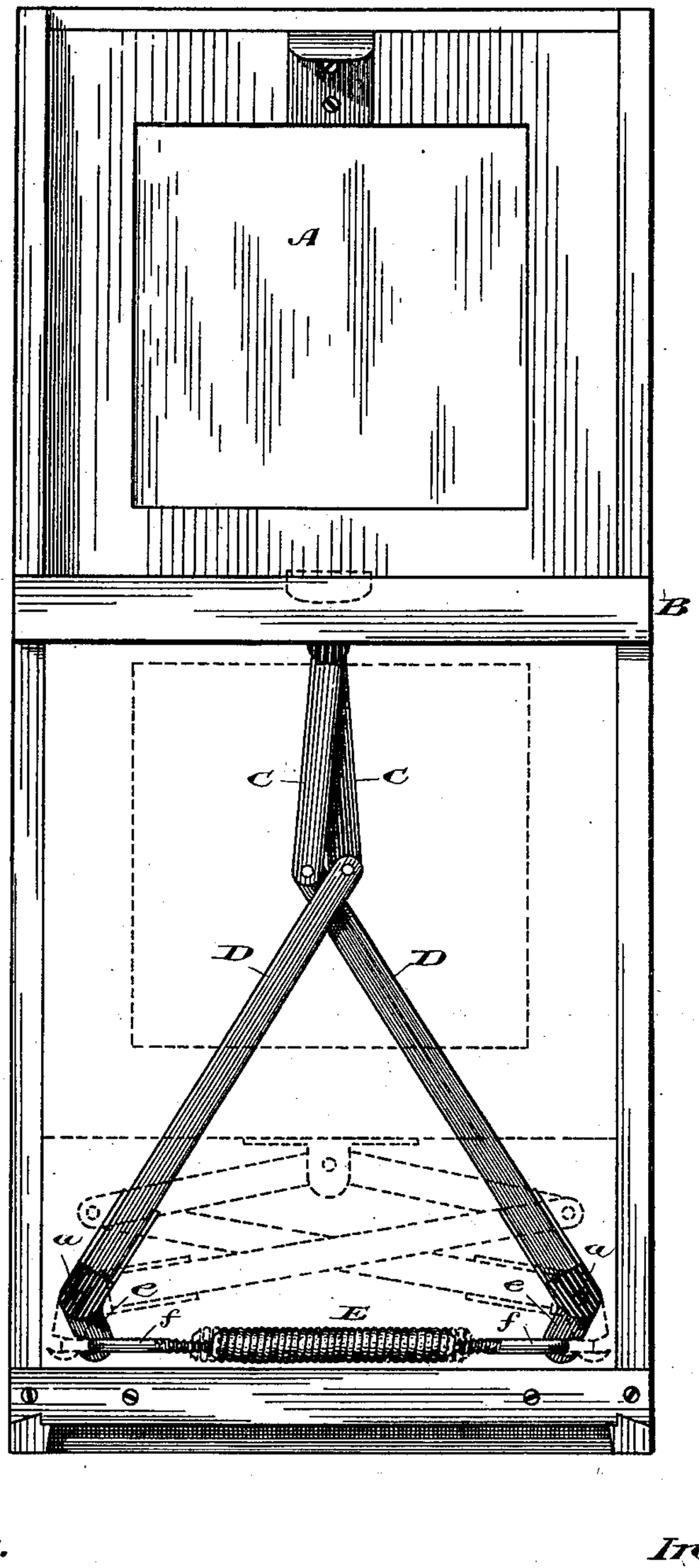
(No Model.)

R. CLARKE.

COMPENSATING SPRING LEVER.

No. 384,610. Patented June 19, 1888.



Witnesses.

F. B. Fetherstonhaugh.

J. M. Jackson.

Inventor:

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Attys

UNITED STATES PATENT OFFICE.

REUBEN CLARKE, OF TORONTO, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF TO DANIEL McFARLANE AND JOHN GRAHAM DARLING, BOTH OF SAME PLACE.

COMPENSATING SPRING-LEVER.

SPECIFICATION forming part of Letters Patent No. 384,610, dated June 19, 1888.

Application filed February 6, 1886. Serial No. 191,049. (No model.) Patented in Canada February 15, 1886, No. 23,426.

To all whom it may concern:

Be it known that I, REUBEN CLARKE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, machinist, have invented an Improvement in Compensating Spring-Levers, (which was patented in the Dominion of Canada February 15, 1886, No. 23,426,) of which the following is a specification.

This invention relates to compensating spring-levers; and it consists in the peculiar combinations and the novel construction and arrangement of parts, all as more fully hereinafter described, and then particularly pointed out in the claim.

The drawing represents my compensating spring-lever device applied to a window-sash, the spring shown being a spiral one.

In order to illustrate my invention I show it applied to the support of a window-sash; but of course it will be understood that the same style of device may be applied in any position where it is desirable to provide a balance for a movable body, it being merely necessary to increase or decrease the dimensions of the various parts in order to adapt it for any desired purpose.

In the drawing, A represents a window-sash, and B the window-sill.

C are two arms pivoted on the bottom of the sash A, and also to the arms or levers D. These levers are pivoted at *a* and are connected to or acted upon by the balance-spring E.

I do not confine myself to any particular style of spring, as any kind of spring may be adapted to my invention without in any way altering the principle involved in the said invention.

The levers D are provided with short arms *e* to hook into the loop-ended spindles *f*, connected to and designed to operate the spring E. When the sash A is pushed down into the position in which it is indicated in dotted lines, the arms C and levers D assume the position likewise indicated in dotted lines, and the spring E is drawn out, the tension of the said spring being increased in proportion to the length it is extended, and it will be seen that in order to compensate for this increased tension the leverage directed on the said spring E by the levers D is increased in proportion to the strain on the spring. In other words, the effective length of the levers is gradually increased as they are pushed down into the position indicated by dotted lines, and in this way the changing power of the spring is compensated by the arrangement of levers connecting the said spring to the movable body it is designed to balance.

Although I find it preferable to employ a double set of levers D and a double set of arms C, it will be seen that the balance would act with only one arm C and one lever D when actuated by a spring, E.

I am aware of the English Patent No. 10,662 of 1884, and make no claim to the construction shown therein as forming part of my invention. I do not employ a lazy-tongs arrangement of levers, as my levers are disconnected, each being independent of the other, as shown. This is important, for by this construction if either of the arms C or the levers D, or either of the arms C and levers D, should become broken, the other set will still be operative, which is not the case with the device shown in the patent above referred to. By pivoting the levers D at or near their ends I economize space and am enabled to make one spring suffice, whether one or two sets of arms and levers are used.

What I claim as my invention is—

The combination, with the arms C, pivoted at one end to the movable body, and the levers D, pivoted at one end to said arms and at the other on fixed pivots, as at *a*, of the short arms *e* on said levers, and the spring E, connecting the free ends of said short arms, substantially as and for the purpose specified.

Toronto, January 23, 1886.

REUBEN CLARKE.

In presence of—

CHARLES C. BALDWIN,

J. M. JACKSON.