

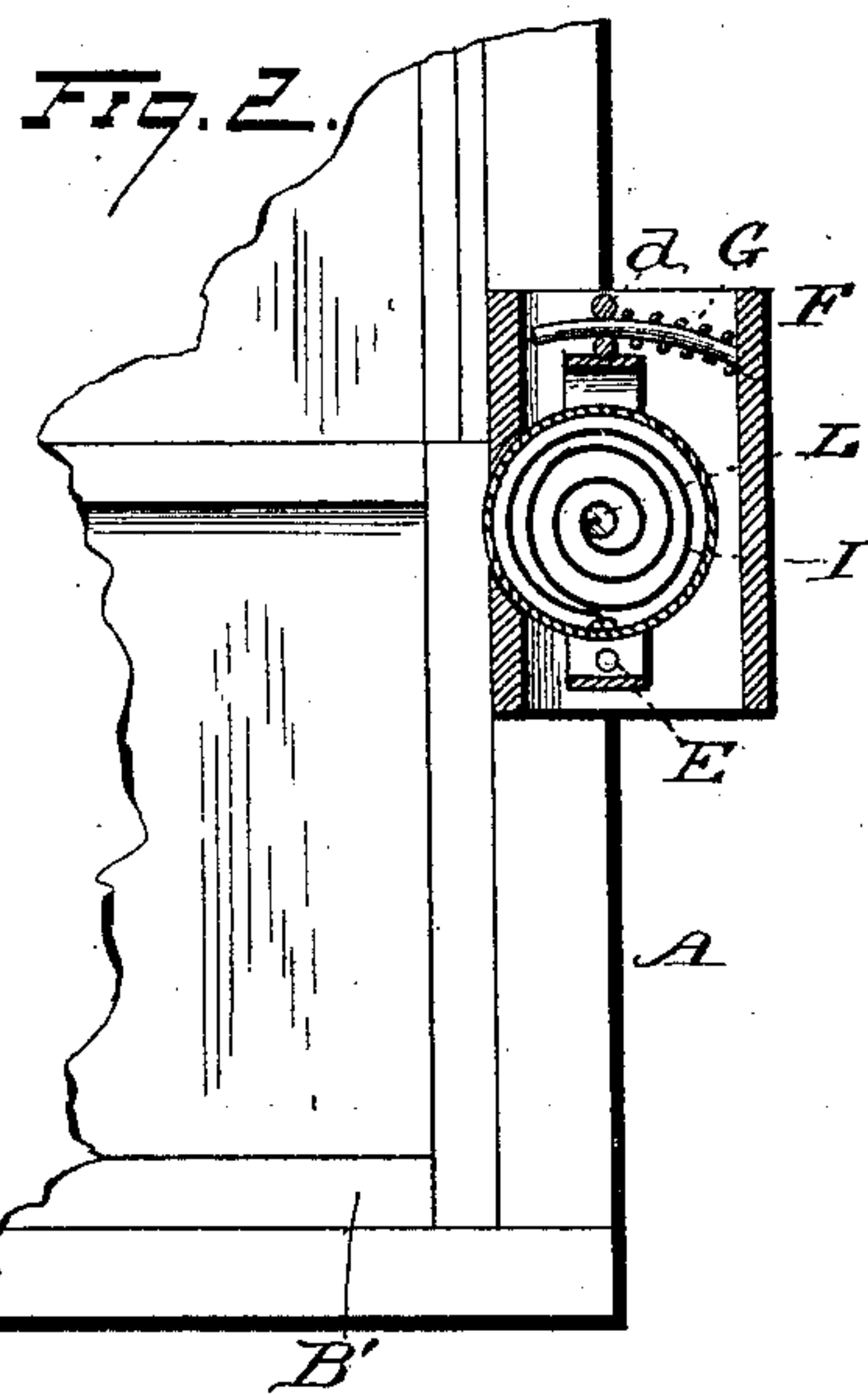
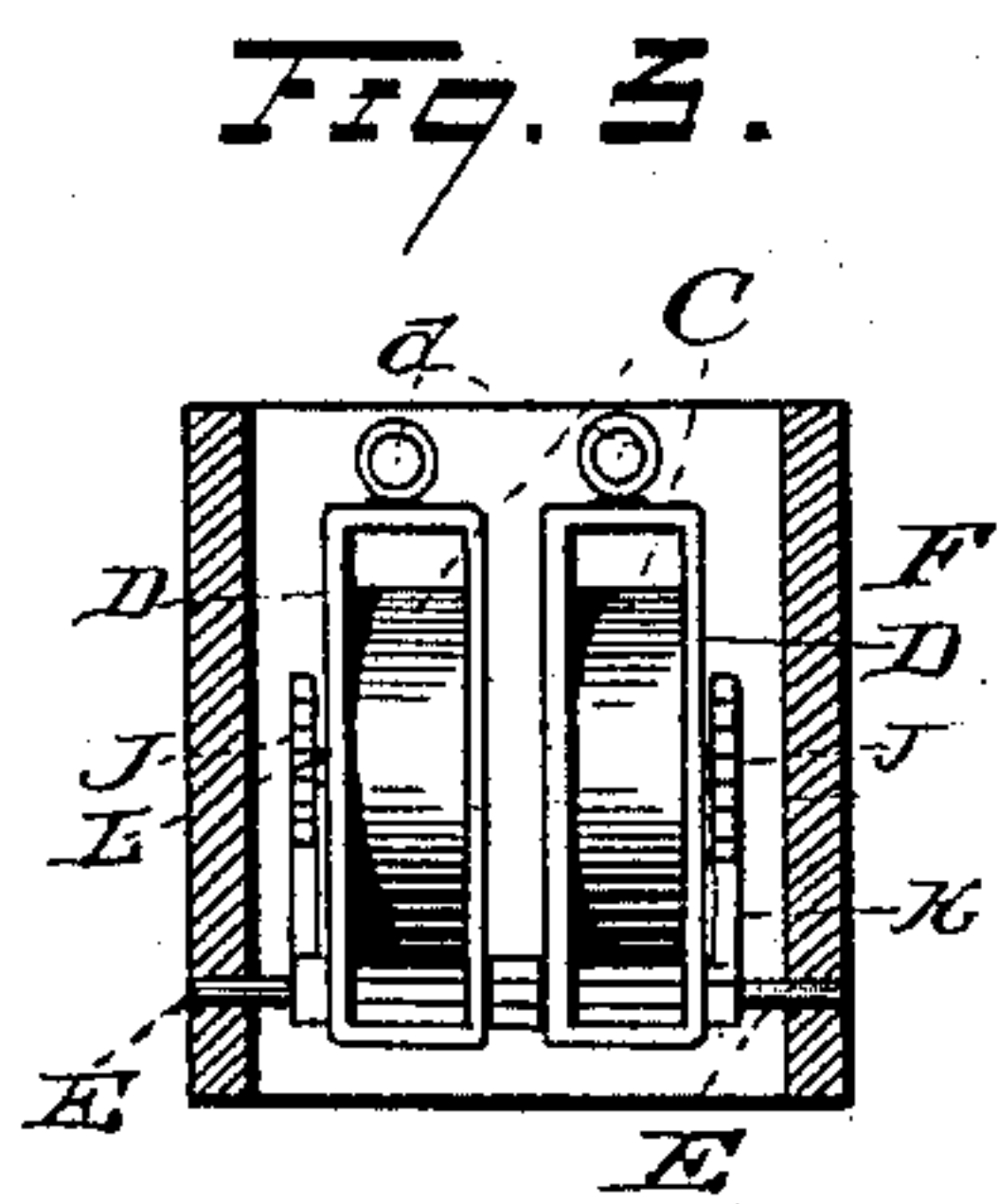
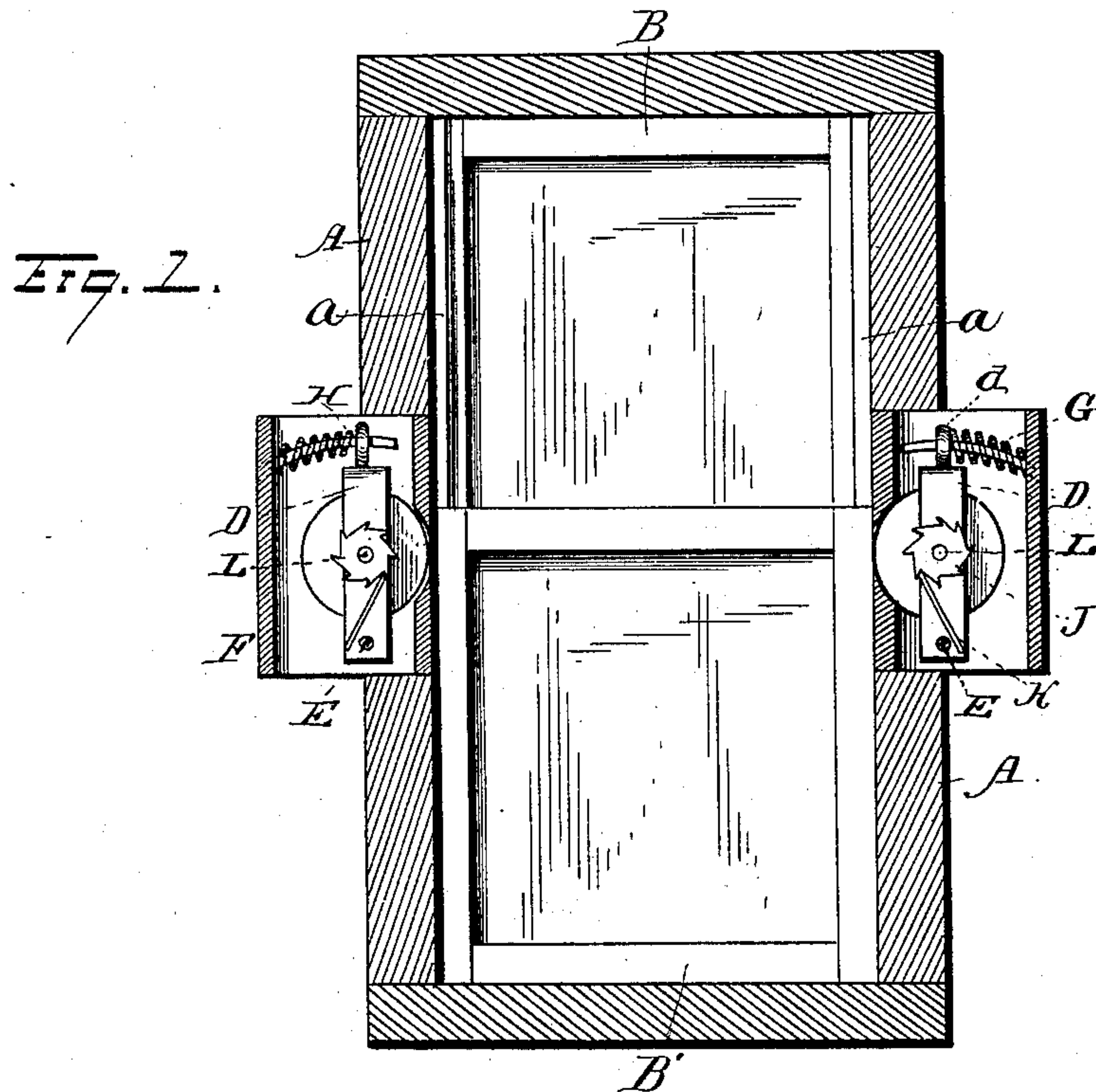
(No Model.)

W. S. MICHAEL & D. W. GEIB.

SASH BALANCE.

No. 321,994.

Patented July 14, 1885.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM S. MICHAEL AND DAVID W. GEIB, OF LANCASTER, PA., ASSIGNORS  
OF ONE-THIRD TO JACOB HOOVER, OF SAME PLACE.

## SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 321,994, dated July 14, 1885.

Application filed May 8, 1885. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM S. MICHAEL and DAVID W. GEIB, citizens of the United States, residing at Lancaster, county of Lancaster, State of Pennsylvania, have invented new and useful Improvements in Sash-Raising Devices, of which the following is a specification.

This invention relates to substitutes for the cords and weights ordinarily used with window-sashes; and it consists, chiefly, in the combination, with a window-sash, of rollers which are in contact with the sash-frame, springs which tend to turn said rollers, so as to lift the sash or assist its raising, and supplemental springs which force said rollers against the sash-frame, so as to maintain a tight though yielding contact.

It consists, also, in certain additional details of construction, hereinafter more particularly set forth and claimed.

In the accompanying drawings, Figure 1 represents a vertical section through a window-frame, showing the sashes and rollers in elevation. Fig. 2 shows a detail vertical section through one of the rollers and its attachments on a plane parallel to that of Fig. 1. Fig. 3 represents a detail transverse section.

In the said drawings the same letters indicate the same parts in the several figures.

A designates the window-frame, provided with removable beads *a*.

B and B' designate, respectively, the upper and lower sashes.

C designates four hollow rollers of identical construction, two of which bear against the opposite sides or edges of the upper sash, and the other two in like manner against the corresponding sides or edges of the lower sash. The two rollers at each side of frame A are arranged side by side, and journaled in metal brackets D. These brackets (of each pair of rollers) are mounted at the bottom on a transverse shaft or rod, E, which is attached at each end to a casing, F, so as to be removable therewith. The upper end of each bracket D is provided with an upwardly-extending perforated lug, *d*, which slides on a

guide-rod, G, attached to said casing. Around each guide-rod G is a spring, H, which bears against said lug and turns said bracket inward on shaft or rod E, so as to hold the roller C against the edge of the sash-frame with a tight though yielding pressure. These rollers C extend through slots in the window-frame, so as to come into contact with the sash-frames, respectively. Each casing F is removable from said window-frame, the rollers, springs, brackets, rods, &c., inclosed therein being removed with it.

Each roller is in effect a hollow drum, and within it is arranged a coiled spring, I, which tends to turn said roller in the direction that would lift the sash against which it works, or assist in lifting it. Each one of these springs has its inner end attached to a shaft, L, which bears a ratchet-wheel, J, which is engaged by a pawl, K, attached to the bracket D. By shifting this pawl from tooth to tooth of said ratchet-wheel and correspondingly turning said wheel the tension of the spring may be regulated at will. These spring-actuated rollers will resist the descent of a sash and assist the raising of it as effectually as the weights and cords ordinarily used, and are free from many obvious disadvantages incident to the latter.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with a roller arranged to be in contact with a window-sash, and a spring which turns said roller to sustain or raise said sash, a supplemental spring which holds said roller against said sash, substantially as set forth.

2. A pivoted bracket, a roller carried by said bracket, a spring which forces said roller against a window-sash, and a rod which guides the movement of said bracket, substantially as set forth.

3. In combination with a slotted window-frame, a removable casing having within it two rollers arranged to bear against the sashes, respectively, the brackets in which said rollers are journaled, the rod or shaft on which said brackets are mounted pivotally,

the springs which turn said rollers, the supplemental springs which force them against the sashes, the guide-rods for the brackets, and the adjusting pawls and ratchets for the  
5 inclosed springs, all of the foregoing parts being removable with said casing, substantially as set forth.

In testimony whereof we have hereunto

set our hands in the presence of two subscribing witnesses.

WILLIAM S. MICHAEL.  
DAVID W. GEIB.

Witnesses:

ALLAN A. HERR,  
IRA H. HERR.