

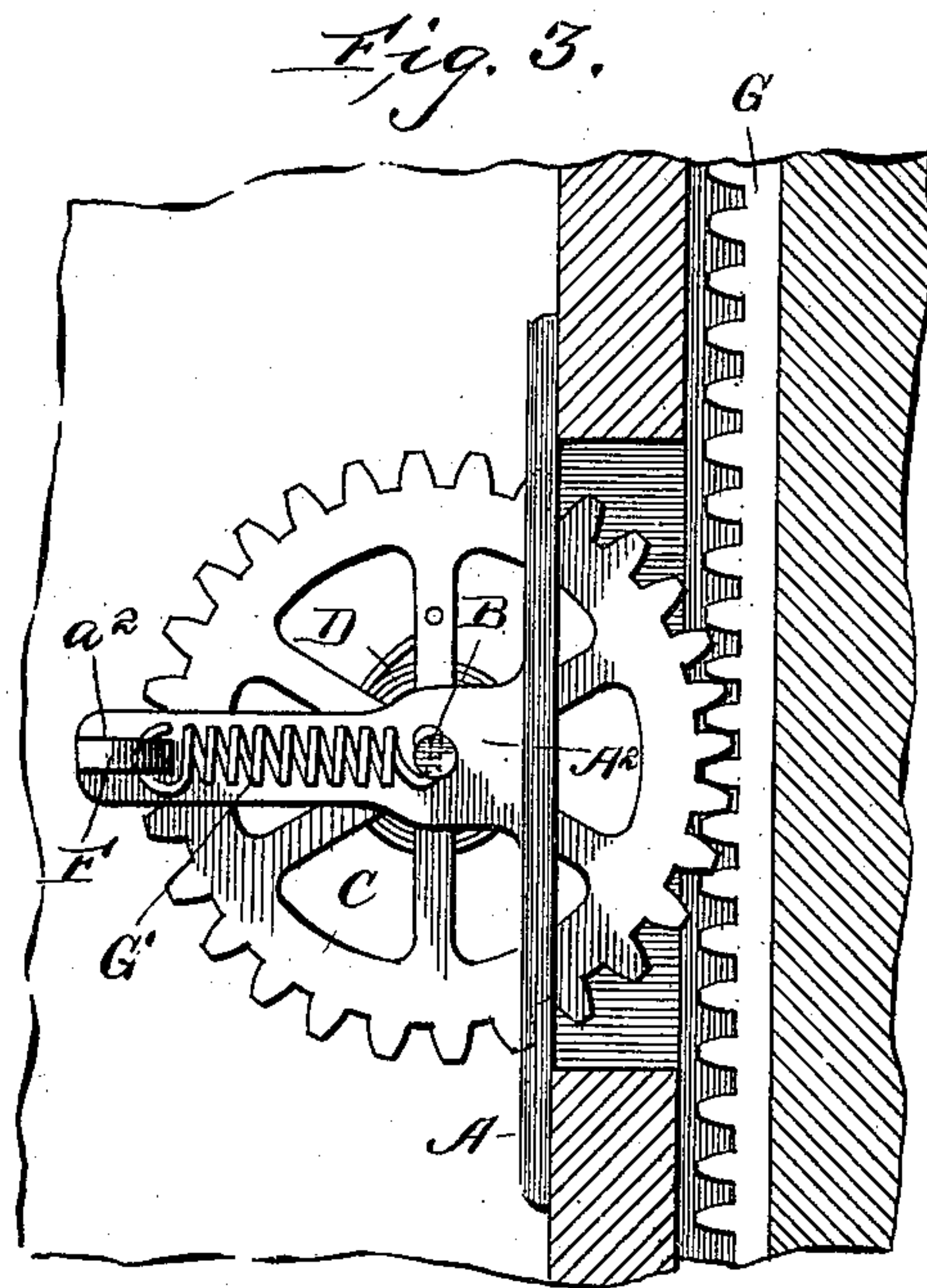
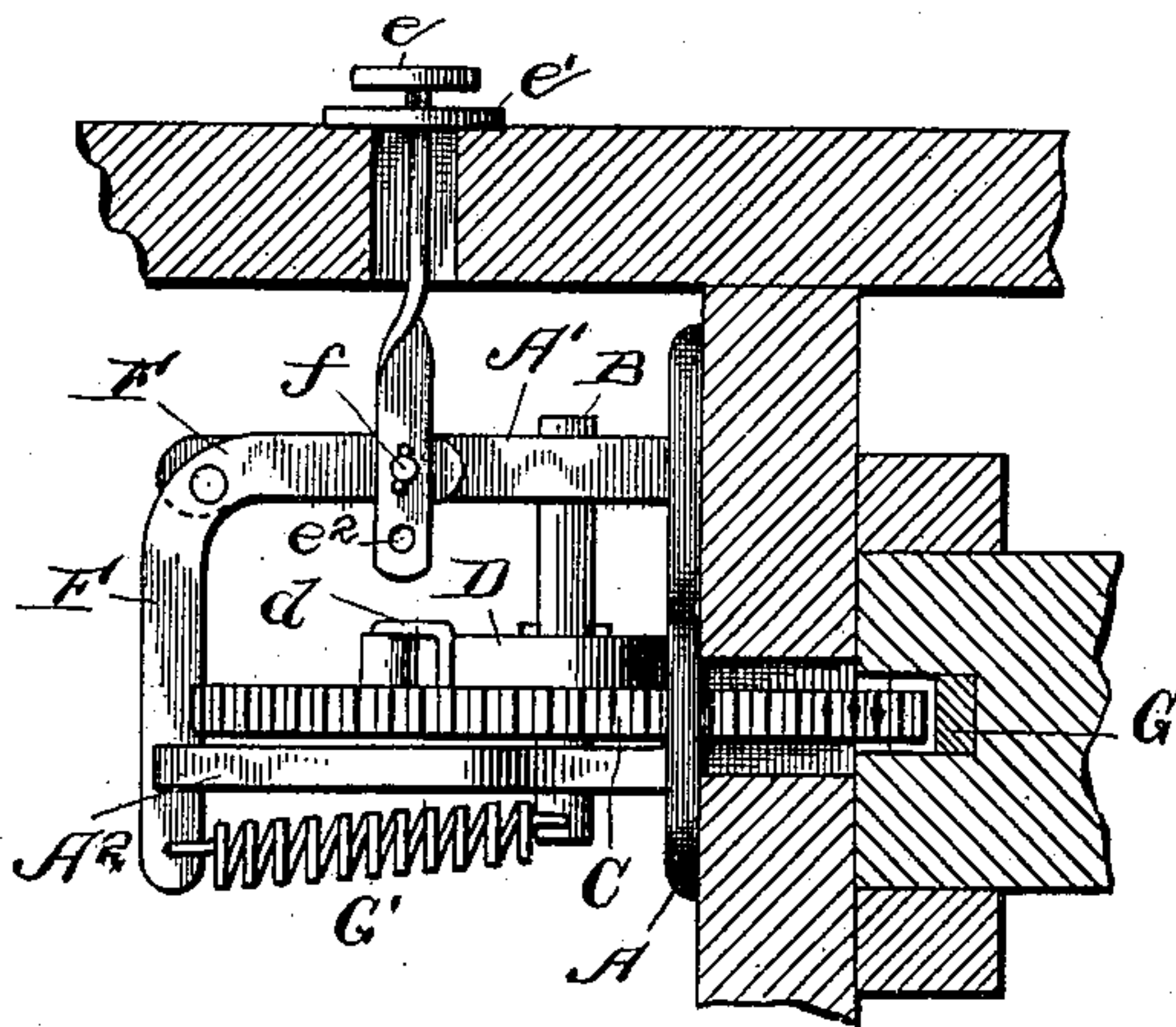
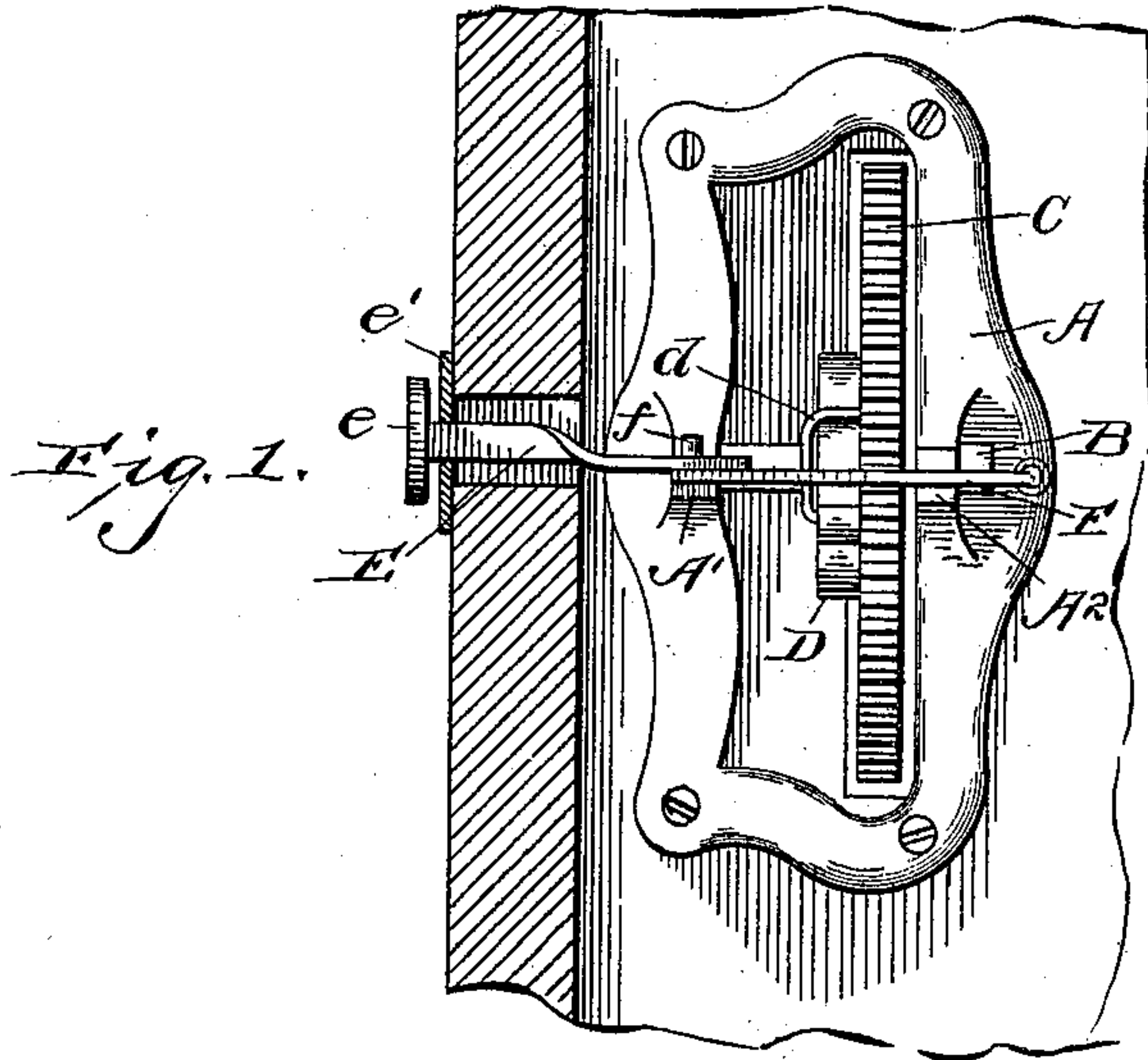
No. 614,779.

Patented Nov. 22, 1898.

O. VANORMAN.  
SASH BALANCE AND LOCK.

(Application filed Feb. 23, 1898.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

OLIVER VANORMAN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO JOHN M. JOHNSTON, OF SAME PLACE.

## SASH BALANCE AND LOCK.

SPECIFICATION forming part of Letters Patent No. 614,779, dated November 22, 1898.

Application filed February 23, 1898. Serial No. 671,313. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER VANORMAN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Sash Balances and Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in sash balances and locks of the character employing a gear and rack. Its object is to produce a combined balance and lock, simple and durable in construction, effective in operation, and capable of easy manipulation.

To these ends the invention consists in the novel construction and combinations of parts hereinafter more fully described, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the invention when the sash is in lowered position. Fig. 2 is a top plan view thereof. Fig. 3 is a rear elevation.

Referring to said drawings by letters of reference, A is a skeleton casting, having a laterally-projecting arm A' A<sup>2</sup> at the center of each side, respectively, adapted to receive at a suitable distance from their ends a non-rotatable shaft B, upon which is loosely mounted a toothed pinion C, as shown. This pinion is adapted to project a sufficient distance through the casting A and the framework to which said casting is attached to mesh with a rack G, fixed upon the edge of the sash to be operated thereby. One end of a clock-spring D is secured to the inner side of the pinion C by means of a loop d, one end of which serves as a means of attachment, while the other limits the expansion of the spring, as shown, while the other end of said spring is attached to the fixed shaft B, thus enabling said spring to be tensioned and thereby communicate power to the pinion.

In order to control the action of my improved balance, I employ the following means: Projecting through a plate e', fastened to the framework of the window, is a rod E, prefer-

ably twisted, as shown, so as to prevent its accidental withdrawal therefrom and to present a narrow horizontal bearing-surface, and having upon its outer end a button e and the other end adjustably secured to a bell-crank lever F by either one of a series of perforations e<sup>2</sup>, adapted to receive a pin f, formed upon the end of said lever, as shown. This lever F is pivotally connected, as at the point F', to the arm A' and projects across the face of the pinion, normally meshing with the teeth thereof. The end of the lever F is normally seated in a slot a<sup>2</sup>, formed in the end of the arm A<sup>2</sup>, by means of a coiled spring G', one end of which is secured to the end of the shaft B, while the other end is attached to the bell-crank lever, as shown.

The operation of my device will be perfectly obvious. If it is desired to lower the sash, the button e is pressed, thereby throwing the bell-crank lever F outward and releasing the teeth of the pinion from mesh therewith. The sash is then drawn downward, the rack thereon causing the pinion to revolve and tension the spring D. Upon removing the pressure upon the button the coil-spring reseats the lever, and thereby prevents further movement of the pinion.

The slot a<sup>2</sup> is provided in order to remove all undue strain upon the point of pivot of the bell-crank lever which would be caused by the strong downward pressure created by the tension of the spring D. I am also enabled to adjust said lever to take up wear, &c., by means of the perforations e<sup>2</sup> in the rod E referred to.

I am aware that modifications in the preferred embodiment of my invention, as herein shown, may be made without departing therefrom—as, for example, in lieu of a loop for attaching the spring to the pinion a pin or bolt could be used.

Having thus described my invention, what I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. A sash-balance composed of a spring-operated pinion meshing with a rack, a skeleton frame having two arms for the support of said pinion therebetween, a bell-crank lever pivoted upon one of said arms, and a

coiled spring holding said lever normally engaged with the pinion, substantially as described.

2. A spring-operated sash balance and lock  
5 composed of a skeleton frame having two arms adapted to support, therebetween, a pinion mounted upon a non-rotatable shaft and operated by a spring as described; with  
10 a bell-crank lever pivoted upon one of said arms and adapted to be held normally seated in a slot in the other arm, and engaged with said pinion, by means of a coiled spring attached to one end thereof, said bell-crank lever being operated by a rod adjustably at-

tached thereto, substantially as and for the 15 purpose described.

3. The push-rod of a sash-balance, mounted in a slotted plate and twisted near its center as shown, to prevent its passage through said plate, and prevented from being forced in- 20 ward therefrom by means of a button fixed upon the outer end of said rod.

In testimony whereof I affix my signature in presence of two witnesses.

OLIVER VANORMAN.

Witnesses:

L. PRAGER,

C. U. FULLER.