

No. 612,367.

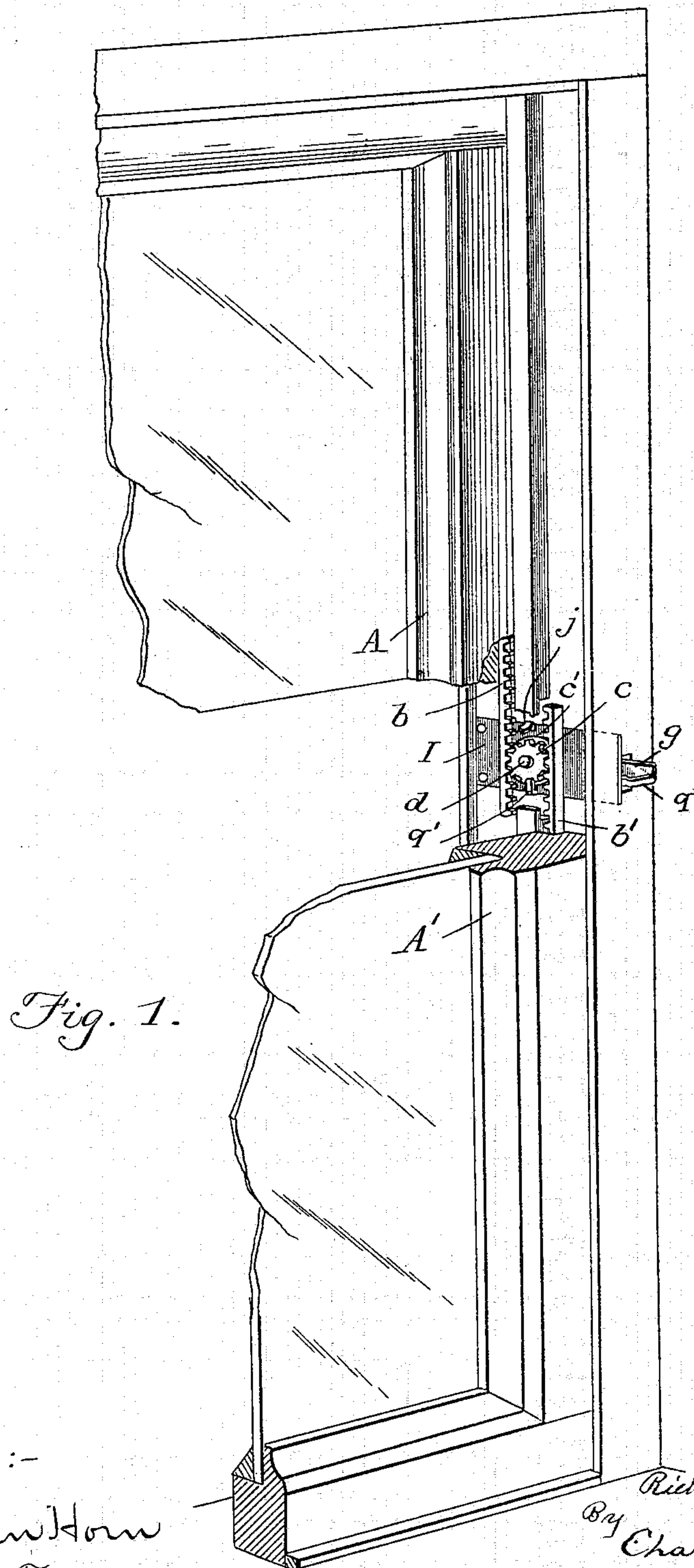
Patented Oct. 11, 1898.

R. M. SHAFFER.  
SASH BALANCE.

(Application filed July 23, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:-

Lee J. Van Horn  
Chapin A. Ferguson

Inventor:-

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By Chas B. Mann  
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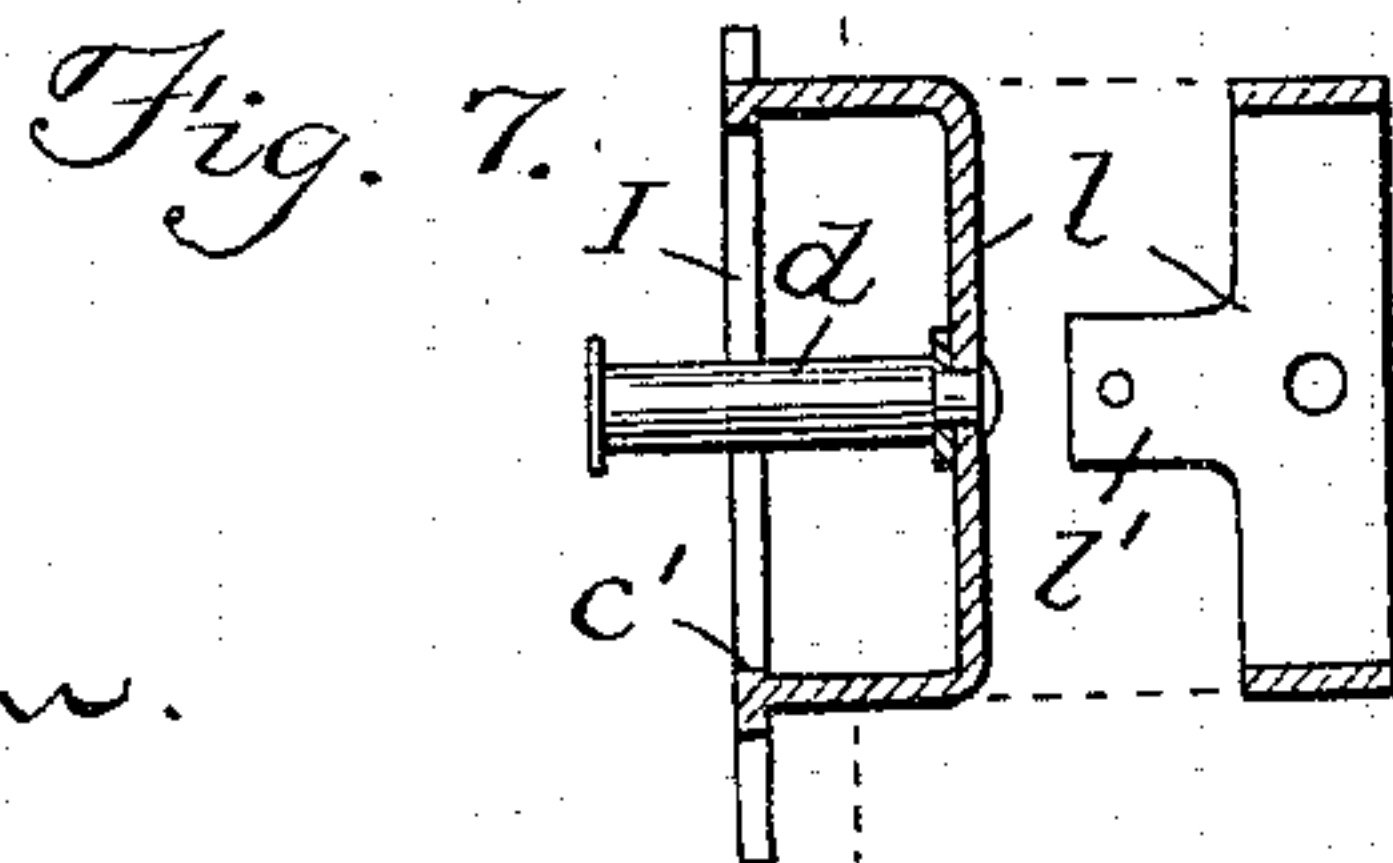
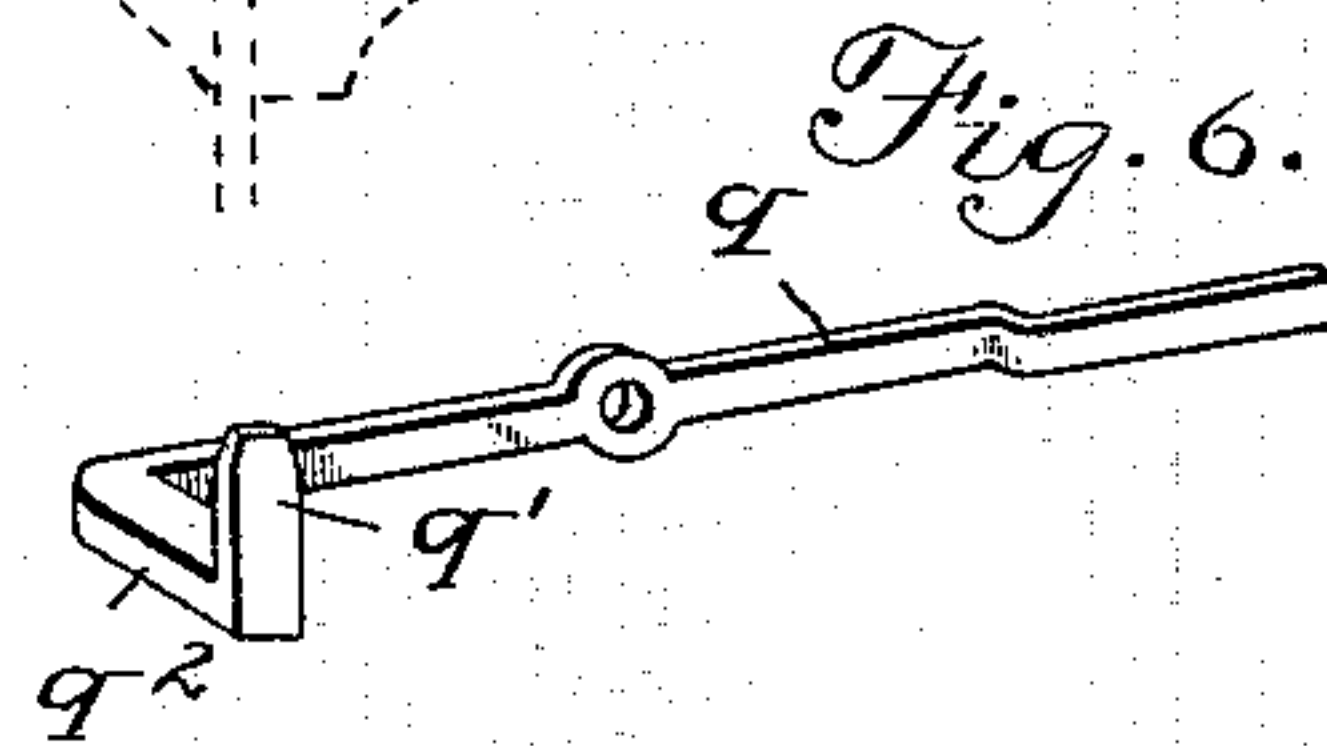
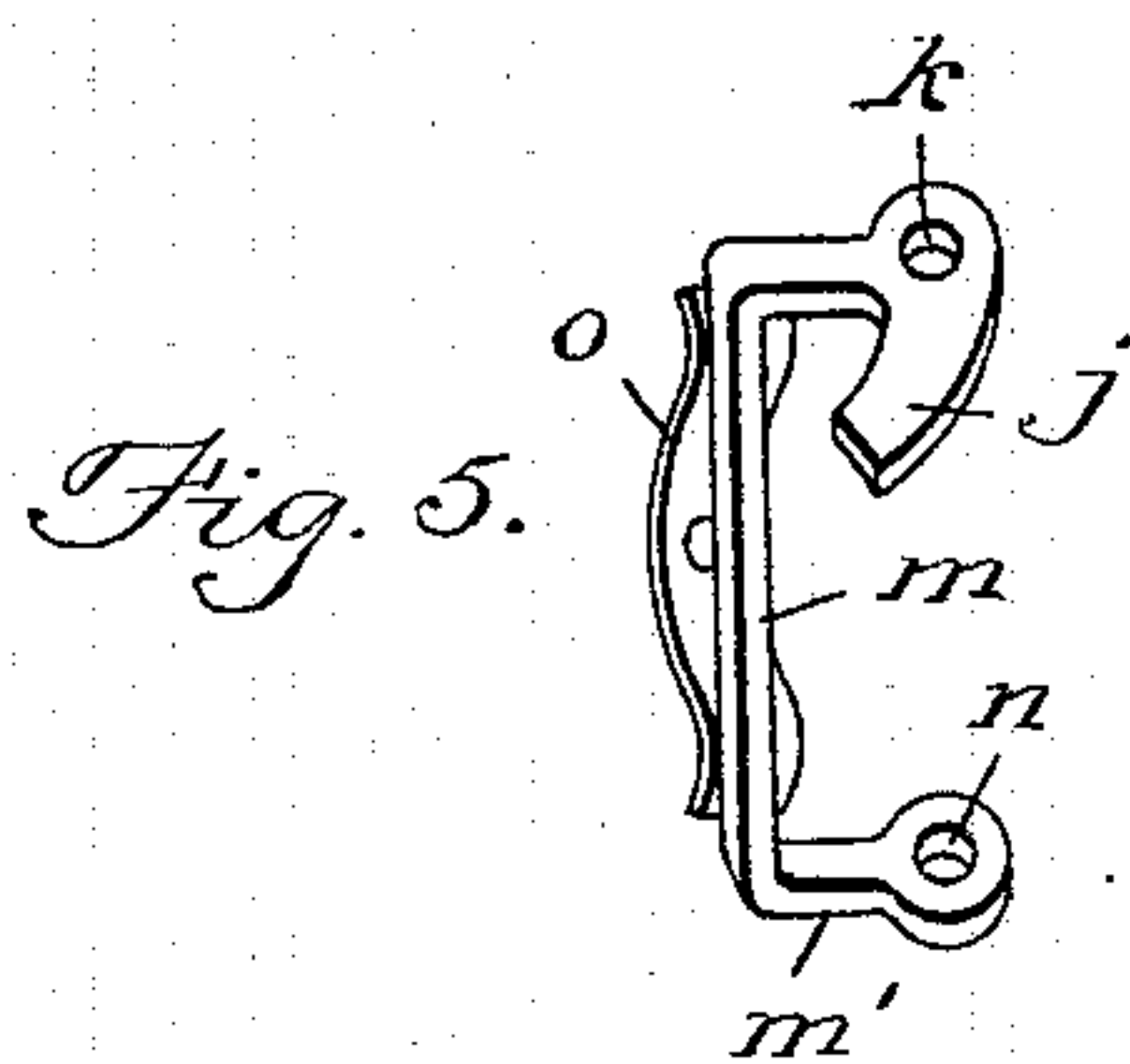
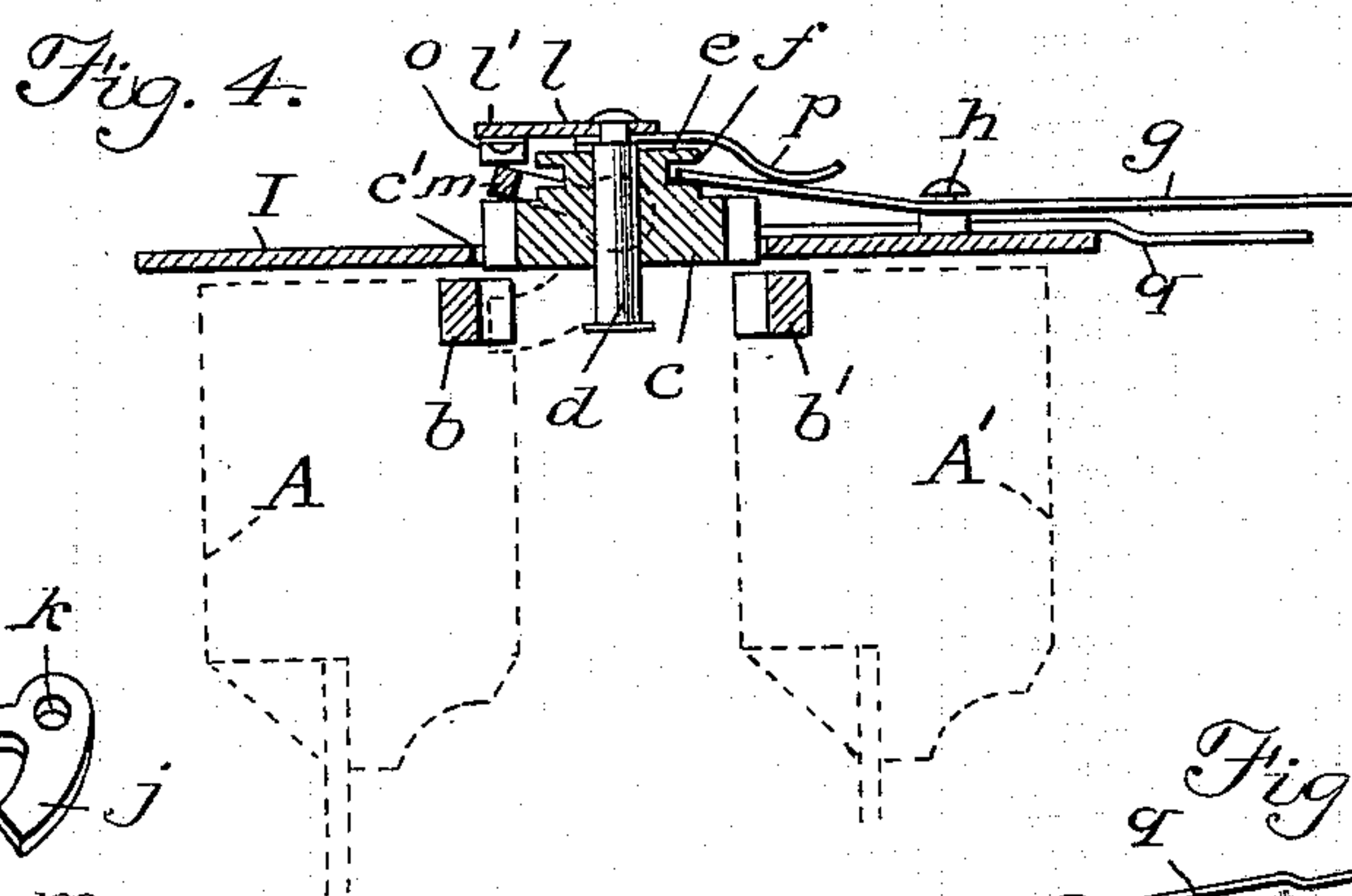
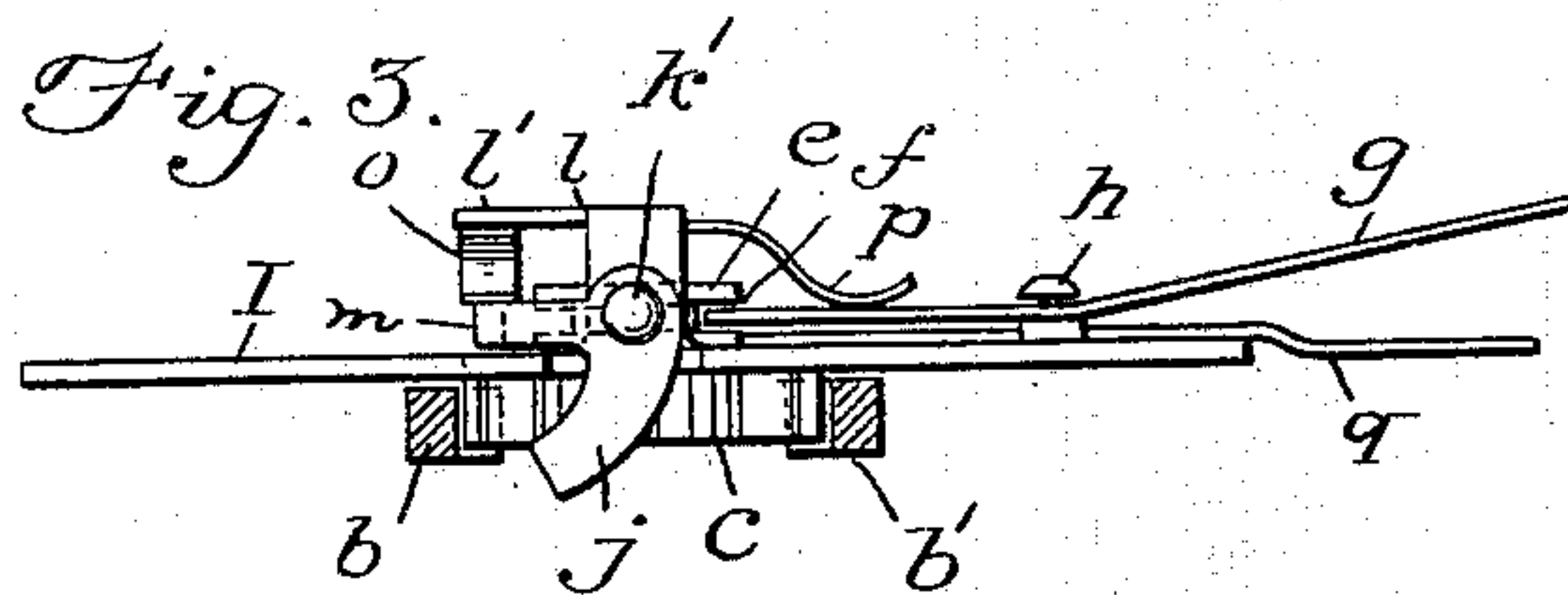
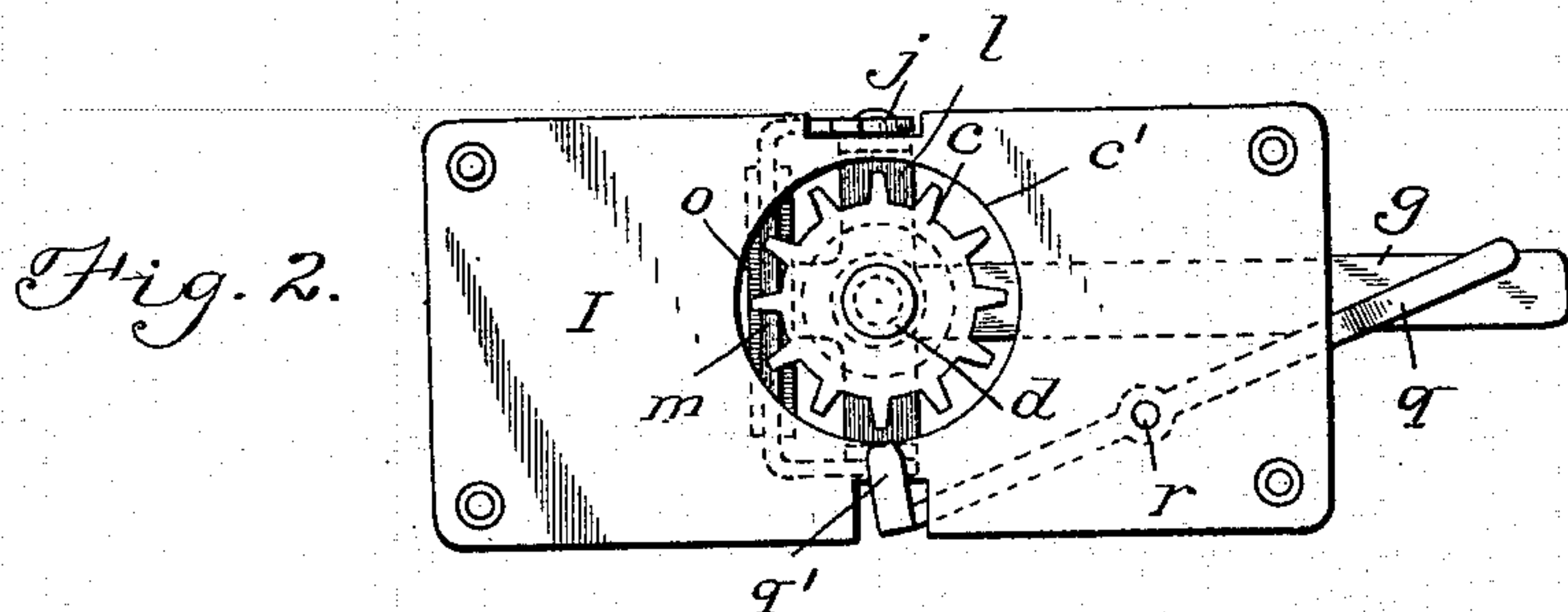
R. M. SHAFFER.

SASH BALANCE.

(Application filed July 23, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

RICHARD M. SHAFFER, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-THIRD TO WILLIAM A. PLEASANTS, OF SAME PLACE.

## SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 612,367, dated October 11, 1898.

Application filed July 23, 1898. Serial No. 686,658. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD M. SHAFFER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Sash-Balances, of which the following is a specification.

This invention relates to improvements in window-sash balances.

10 The construction of the parts comprising the invention and the operative relation of such parts with respect to the sashes will first be described, and the invention will then be pointed out in the claims.

15 In the drawings, Figure 1 is a perspective view of a window and two sashes, part of which is broken away to show the improvement. Fig. 2 is a front view of the balance device. Fig. 3 is a top view of same. Fig. 4 is a horizontal section of same through the balance-gear, showing the latter disengaged from the two rack-bars and in broken lines denoting the position of the sash-frames. Fig. 5 is a perspective view of the upper-sash 20 retainer. Fig. 6 is a perspective view of the locking-lever. Fig. 7 shows two views of the pivot-stud and frame.

The upper sash A has a vertical rack-bar *b* and the lower sash A' has a like bar *b'*. A balance-gear *c* turns on a fixed pivot-stud *d*, and said gear slides on the stud, so that when in one position (see Figs. 1 and 3) the gear will engage the two rack-bars, and when in the other position (see Fig. 4) the gear will be disengaged from both rack-bars. When the balance-gear *c* is engaged with both rack-bars, the two sashes are balanced, and as a consequence the upper sash will lower by merely raising the lower sash, or vice versa.

40 The balance-gear *c* is movable through a round hole *c'* in the plate I. The pivot-stud *d* is horizontal and has one end rigidly secured to a frame *l*, which is attached to the plate I, and said stud projects centrally through the round hole *c'*. The gear has at its back a head *e* and a groove or neck *f* between the head and back. A shifting-lever *g* is pivoted at *h* on the back of plate I, and one end of the lever takes into the groove *f* of the balance-gear and the other end projects out at 50

the side of the window-case, where it may be readily grasped by the hand. By means of this lever the balance-gear may be moved on the pivot-stud and caused to take either one of its two positions.

55 A device is combined with the balance-gear and shifting-lever to retain the upper sash wherever it may happen to be and prevent it from falling when the gear is disengaged from the rack-bars. This retainer device is shown separately in Fig. 5. It comprises a curved pawl *j*, having a pivot-hole *k*, and secured by a pivot-pin *k'* at the top of the frame *l*, so as to swing. A bracket-arm is attached to this pawl *j*. This arm has a vertical portion *m*, 65 at the lower end of which is a lateral part *m'*, having a pivot-hole *n*, by which it is pivoted at the bottom of the frame *l*, so as to swing. A vertically-disposed curved plate-spring *o* is secured by a rivet at its center to the said frame or to a lateral arm *l'* on the frame, and the free ends of the curved spring bear against the vertical portion *m* of the bracket-arm and normally press the latter forward toward the gear *c*, and thereby swing the curved pawl *j* 75 away from the rack-bar *b*, as in Figs. 1 and 3. The vertical portion *m* of the bracket-arm has position just back of the gear *c*, whereby when the shifting-lever *g* moves said gear back and disengages it from the rack-bars 80 the gear will press against the vertical portion *m* and cause the curved pawl to swing toward and engage a tooth of the rack-bar *b*, as indicated in Fig. 4, and thus retain the upper sash and prevent it from falling. In addition to the spring *o* a special spring *p* may be employed to press forward the balance-gear *c* and lever *g*. 85

A locking-lever *q* is attached to the back of plate I by a pivot *r*. This lever has at one end an upward-projecting prong *q'* fixed on a lateral arm *q''*. The prong *q'* has position in front of the plate and is below the balance-gear *c* when the latter is in its forward position. Thus the prong may be engaged between two teeth of the gear by simply tilting the locking-lever, and such engagement will prevent the gear from turning and will thereby hold the two sashes wherever they may be set, partly open or entirely closed. 100



It will be understood from this description that the two sashes may be worked in balance, one counterbalancing the other. The gear *c* may be disengaged and simultaneously the  
5 upper sash will be held or retained from falling, and the two sashes may be locked at any position, so as to prevent any one on the outside from moving them.

Having thus described my invention, what  
10 I claim is--

1. The combination of two sashes each having a rack-bar; a fixed pivot-stud projecting between the two rack-bars; a balance-gear to engage the two racks and revoluble and also  
15 slidable on said stud; a shifting-lever which moves or slides the balance-gear on the stud; and a spring which normally presses the balance-gear and lever forward.

2. The combination of two sashes each having a rack-bar; a balance-gear to engage the two rack-bars and which is movable to disengage them; a lever to shift the balance-gear; and a pivoted pawl which is automatically caused to engage a tooth of the rack-bar of  
25 the upper sash and to disengage said tooth by the movement of the said balance-gear.

3. The combination of two sashes each having a rack-bar; a balance-gear to engage the two rack-bars and which is movable to disen-

gage them; a lever to shift the balance-gear; 30  
and an upper sash-retainer comprising a laterally-swinging pawl, a bracket-arm attached to the pawl and moved by the gear, and a spring to normally press the bracket-arm against the said gear. 35

4. The combination of two sashes each having a rack-bar; a gear to engage the two rack-bars and thereby balance the sash; a lever to shift the balance-gear; and a locking-lever having a prong to engage the teeth of the said  
40 gear and thereby lock the two sashes at any position.

5. The combination of a plate having a hole and a frame at the back of the plate opposite said hole; a pivot-stud rigidly attached by  
45 one end to the frame and projecting through said hole in the plate; a sash-balance gear revoluble on the stud and also slidable thereon; and a shifting-lever pivoted on the plate and adapted to slide the gear without restrict- 50  
ing its revolution.

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

RICHARD M. SHAFFER.

Witnesses:

HENRY C. GRUBB,  
EDWARD B. AMBLER.