

(Model.)

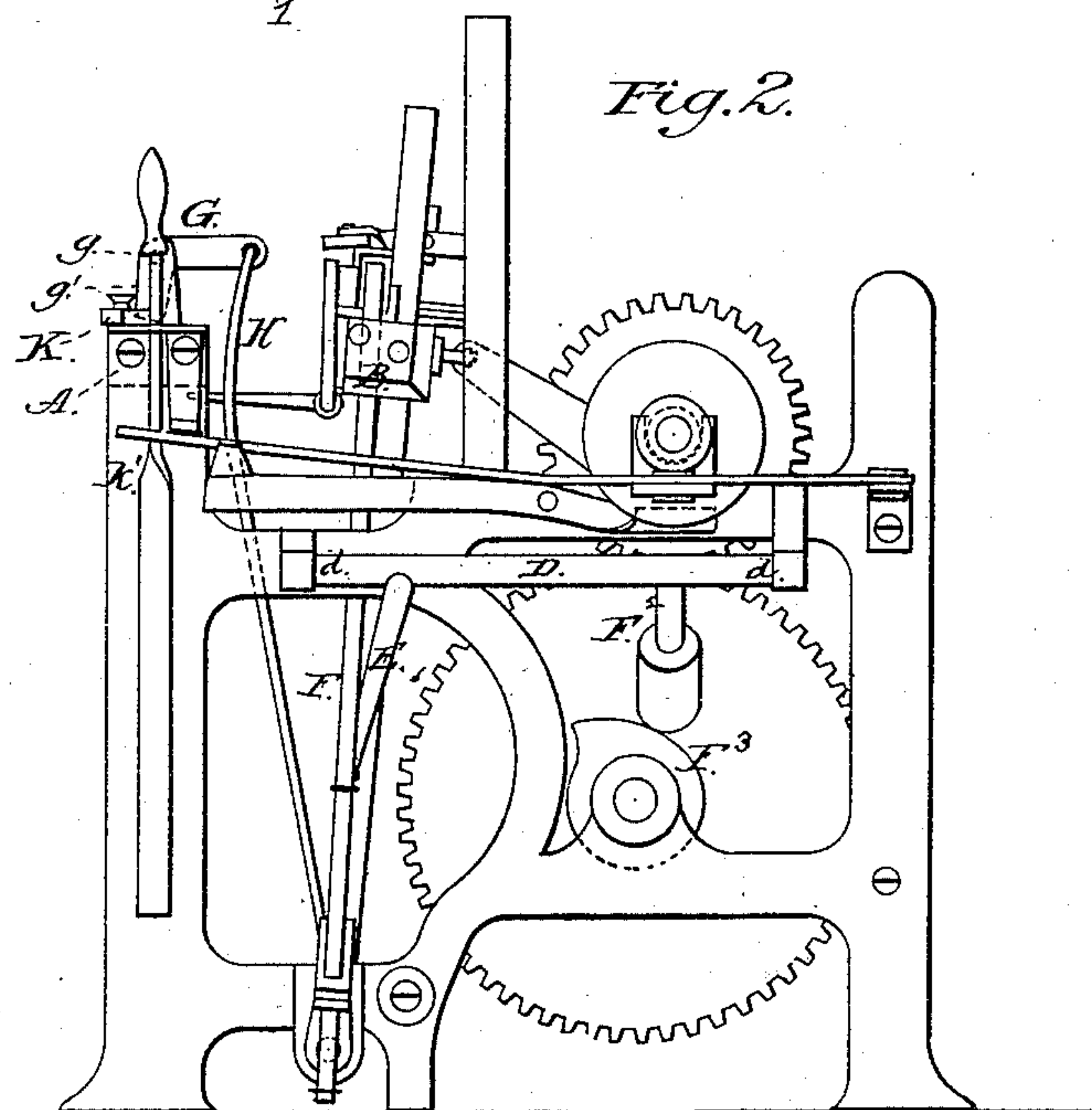
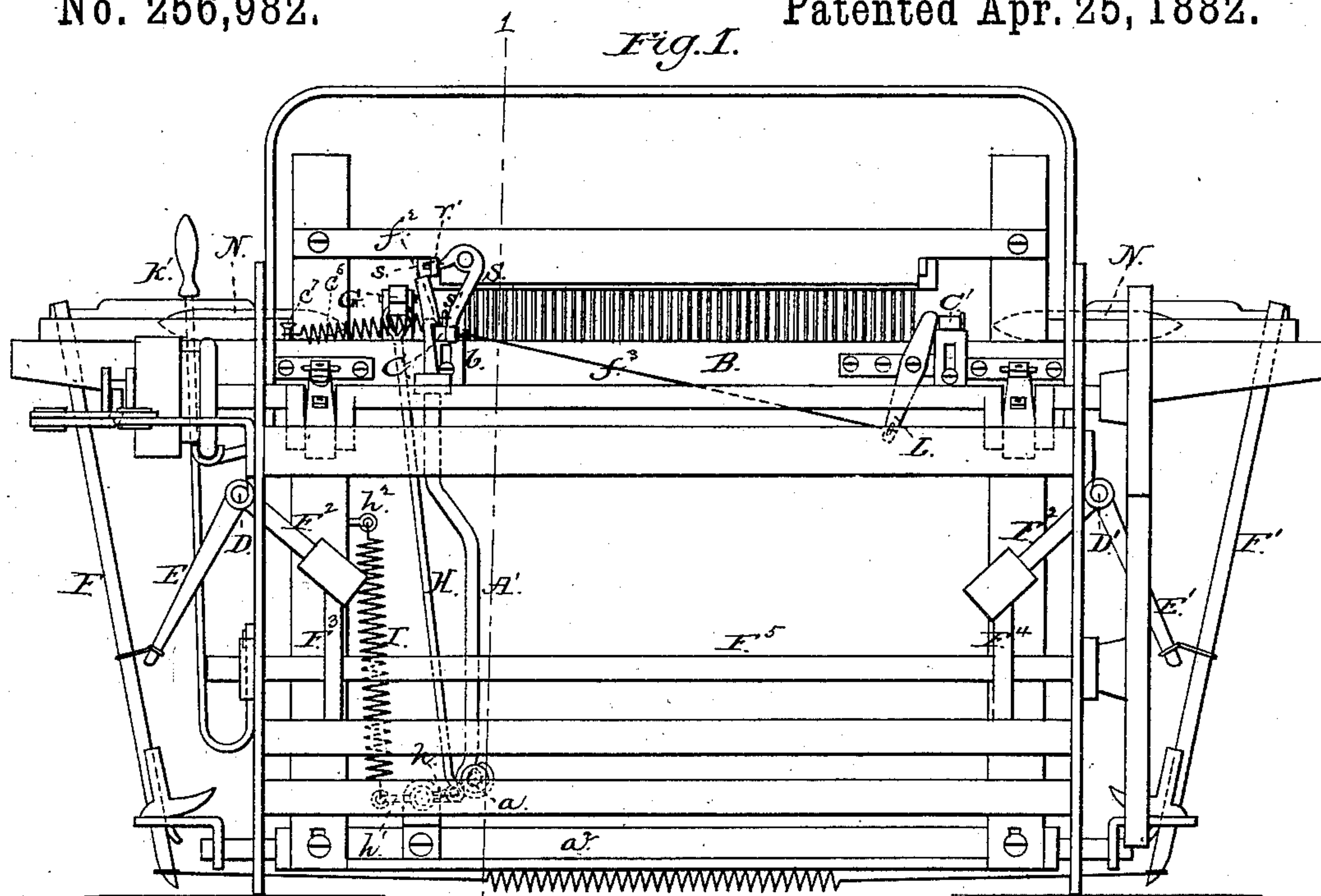
3 Sheets—Sheet 1.

J. W. T. DAVIDSON & D. GREEN.

LOOM STOP MOTION.

No. 256,982.

Patented Apr. 25, 1882.



WITNESSES

*John A. Ellis.*  
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ATTORNEYS

(Model.)

3 Sheets—Sheet 2.

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Fig. 3.

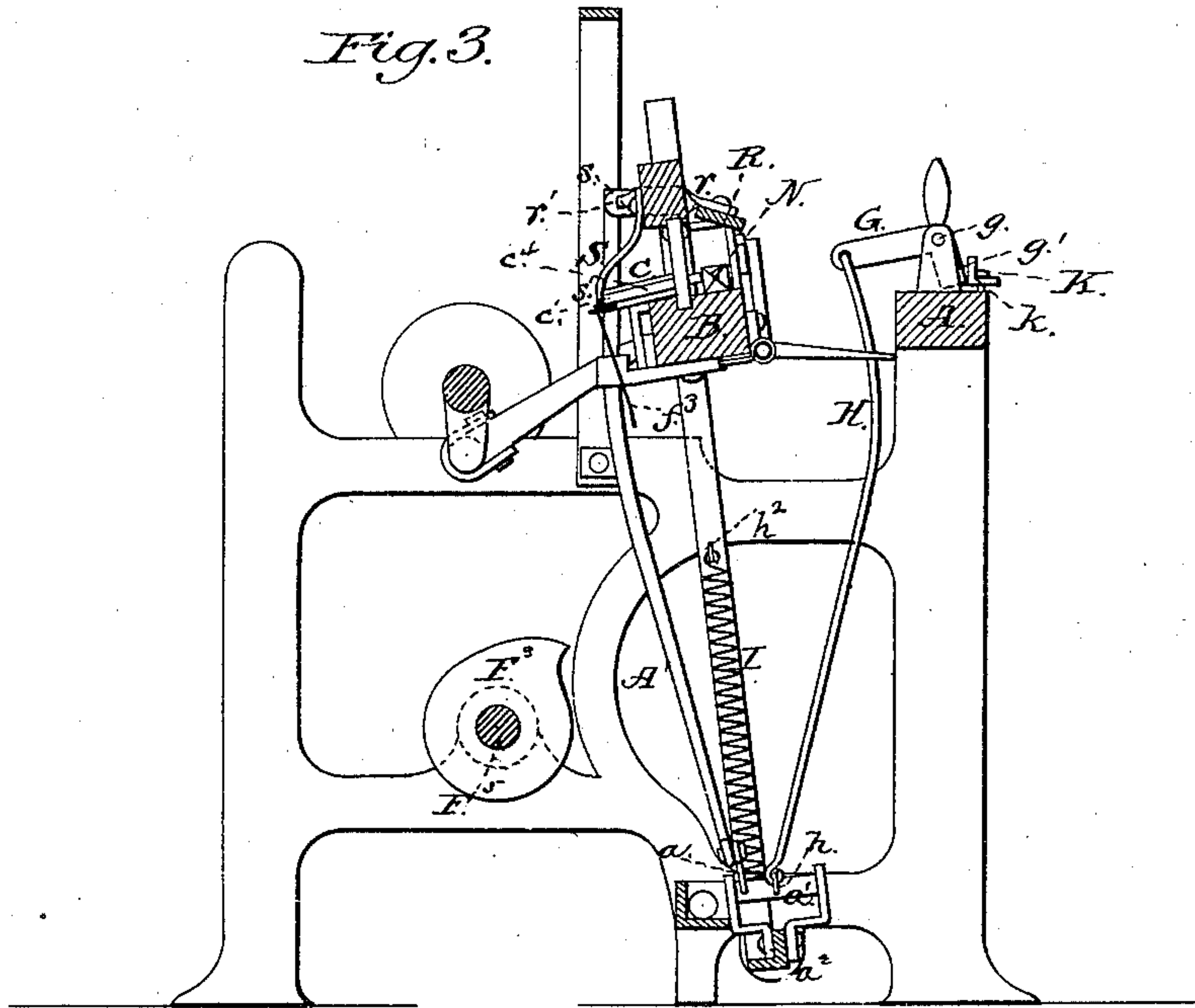


Fig. 4.

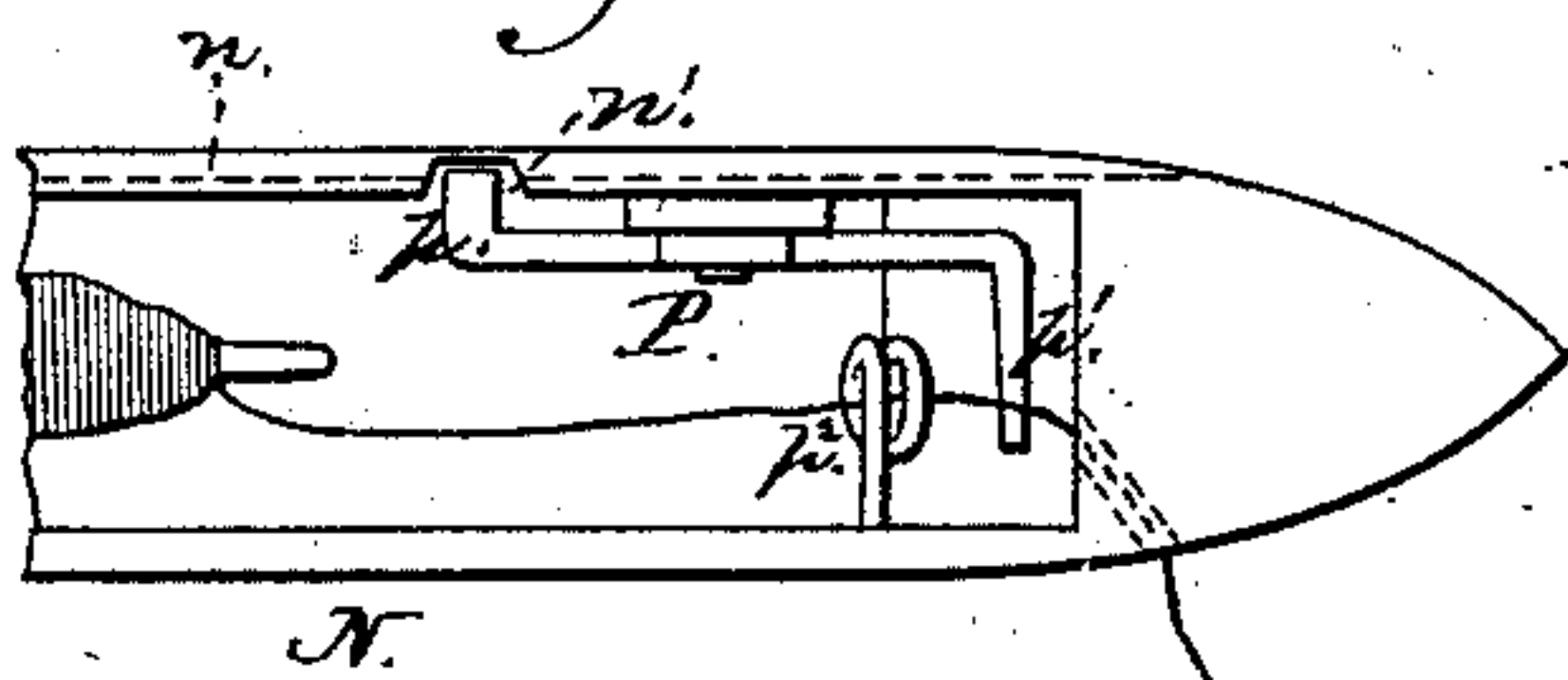


Fig. 5.

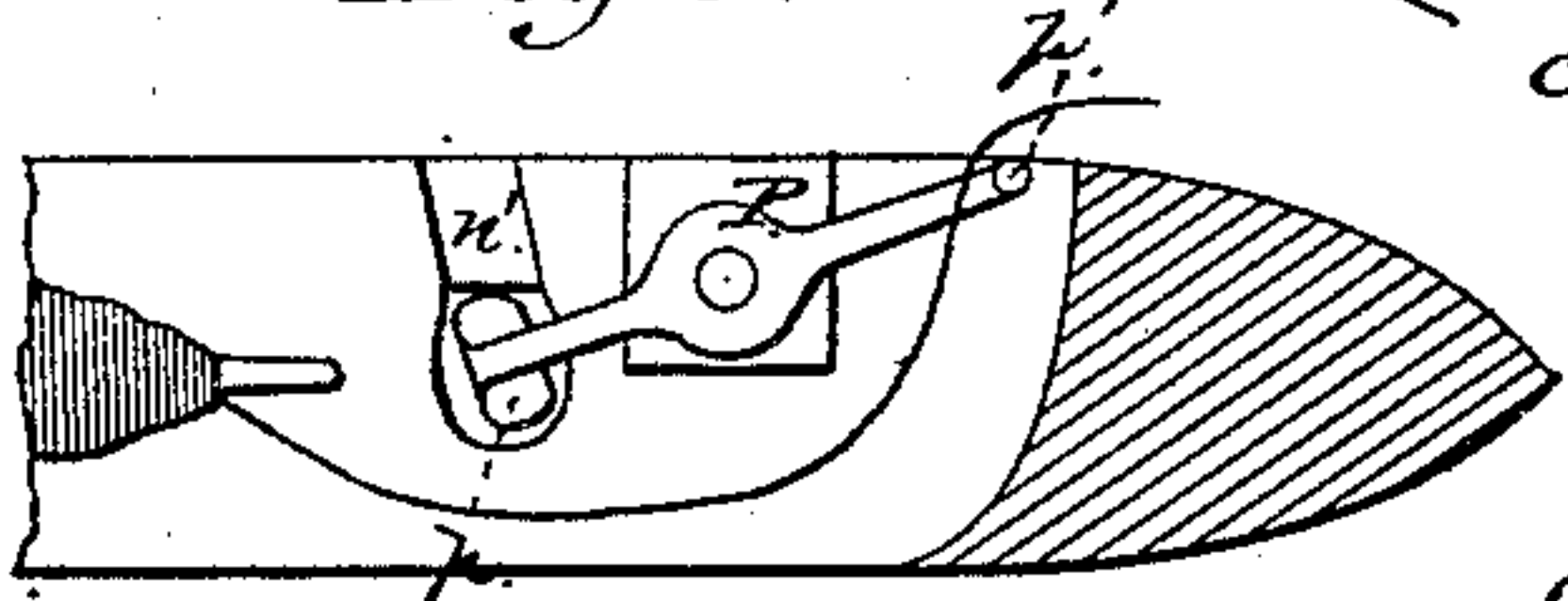


Fig. 6.

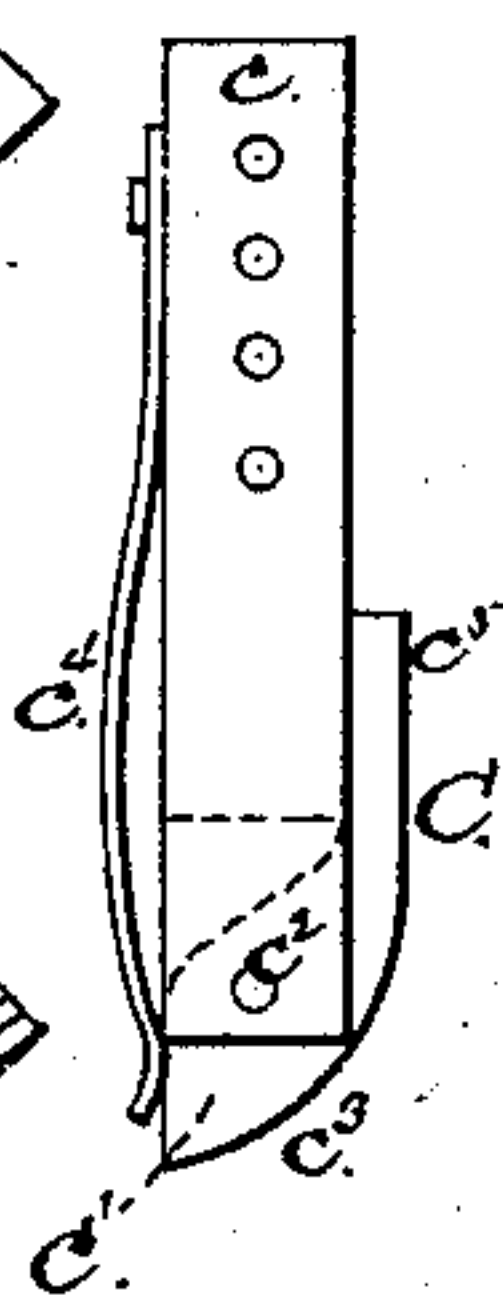
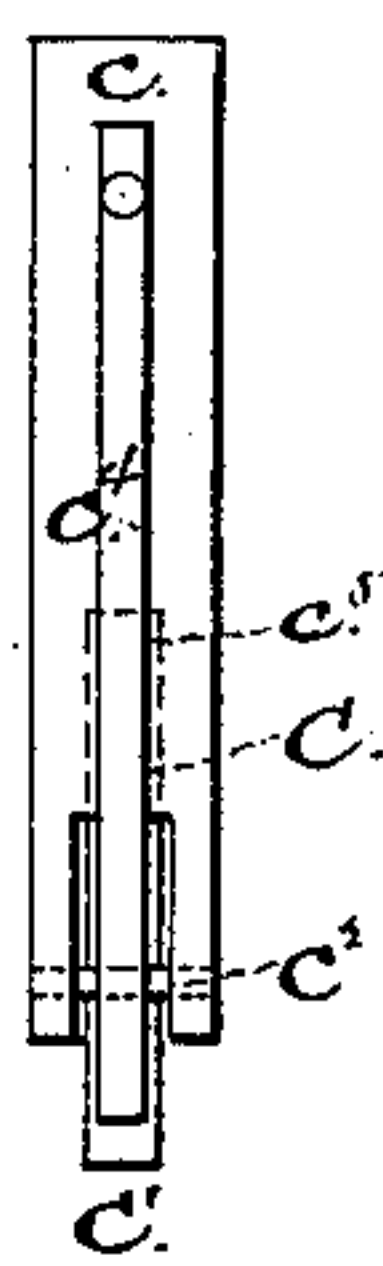


Fig. 7.



WITNESSES

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(Model.)

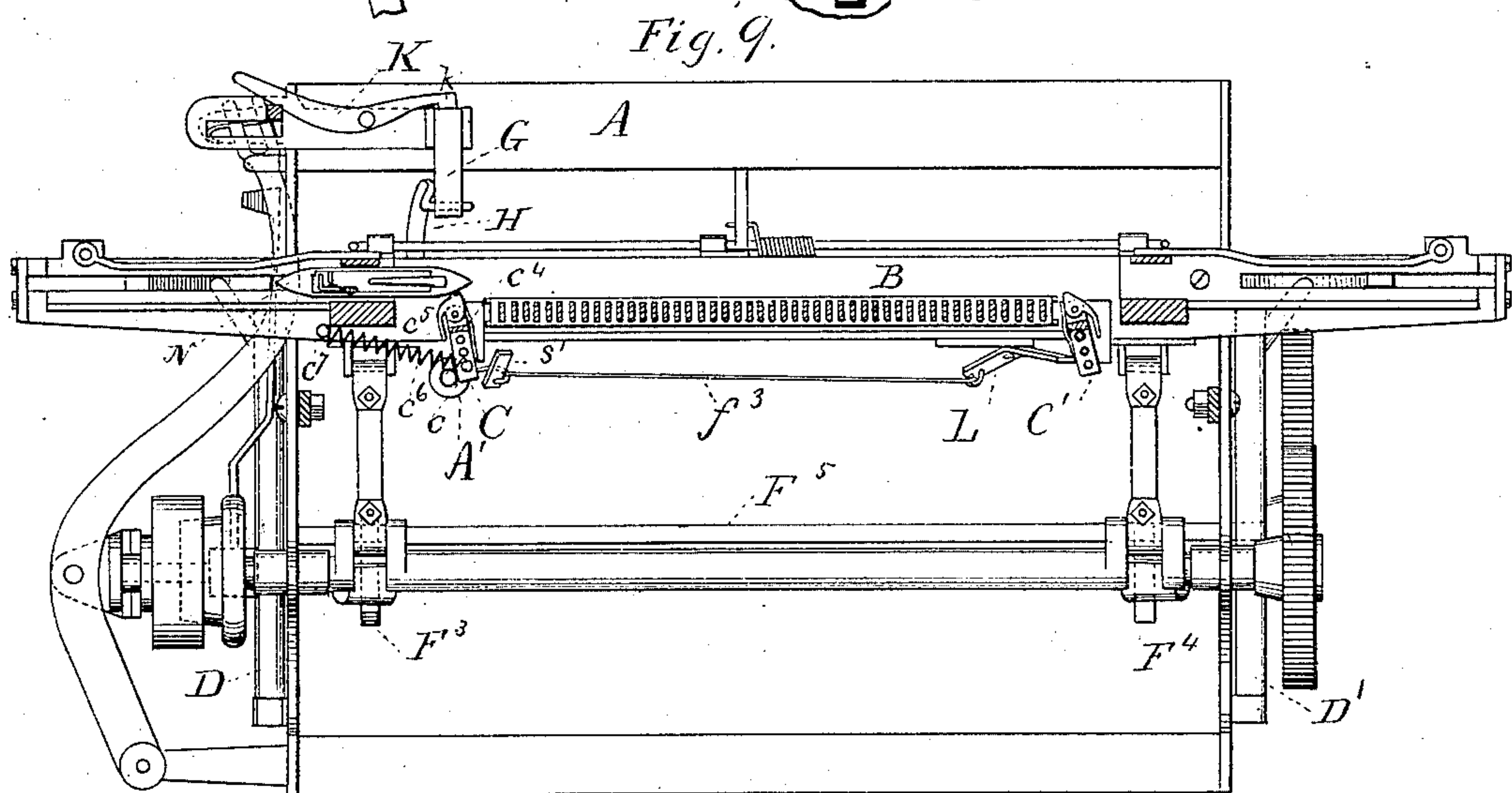
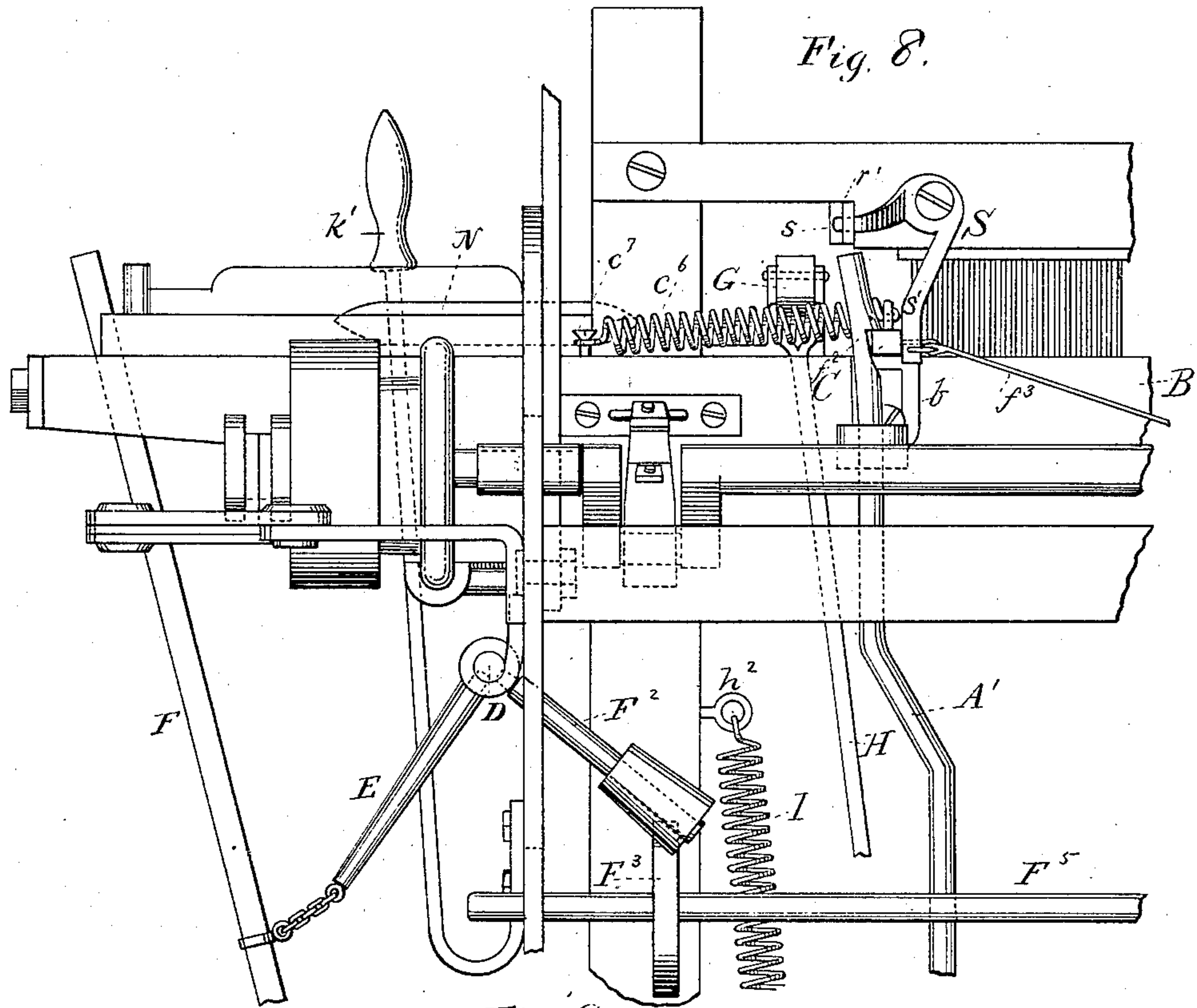
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WITNESSES

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# UNITED STATES PATENT OFFICE.

JAMES W. T. DAVIDSON, OF BROWNVILLE, ALABAMA, AND DOUGLASS GREEN, OF COLUMBUS, GEORGIA.

## LOOM STOP-MOTION.

SPECIFICATION forming part of Letters Patent No. 256,982, dated April 25, 1882.

Application filed June 18, 1881. (Model.)

*To all whom it may concern:*

Be it known that we, JAMES WILLIAM THOMAS DAVIDSON, of Brownville, in the county of Lee and State of Alabama, and DOUGLASS GREEN, of Columbus, in the county of Muscogee and State of Georgia, both citizens of the United States, have invented certain new and useful Improvements in Loom Stop-Motions; and we 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, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear elevation of a loom containing our invention. Fig. 2 is an elevation of the right-hand end thereof. Fig. 3 is a vertical transverse sectional view, taken on dotted line 1 1 in Fig. 1. Figs. 4 and 5 are detail views of the shuttle and the weighted lever within the same. Figs. 6 and 7 are detail views of one of the flirts. Fig. 8 is an enlarged detail view, representing in rear elevation, the parts shown at the left-hand end of the lathe in Fig. 1; and Fig. 9 is a plan view of the loom with the upper portion of the reed, &c., removed to show the position of the flirts.

This invention has relation to means for stopping the loom when the filling breaks and for preventing an overshot or an upward fly of the shuttle; and it consists in the novel construction and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims..

The object of the present invention is the production of a stop-motion which will operate automatically at the breaking of the filling, and will have an immediate action to stop the loom before the shed is closed, and of an overshot-preventer to be attached to a portion of the stop-motion devices.

In the annexed drawings, A designates the breast-beam of the loom and B the lathe. To the rear of the lathe, on one side, is secured a bracket, b, to which is pivoted the flirt C, with its heel c extended behind the lathe and its body projecting over the same. A spring, c<sup>6</sup>, connects the heel of the flirt C with a pin, c<sup>7</sup>,

rising from the lathe, and its head c', which is pivoted at c<sup>2</sup>, is formed with a bevel, c<sup>3</sup>. The head of the flirt C is held in alignment by the spring c<sup>4</sup>, its rear projection, c<sup>5</sup>, being caused thereby to bear on the stem of the flirt.

At the sides or ends of the loom are placed rock-shafts D D', journaled by their ends d in bearings, and carrying arms E E', the lower ends of which are connected to the picker-staffs F F'. Said shafts D D' are provided with inwardly-projecting weighted arms F<sup>2</sup>, which alternately engage oppositely-placed picking-cams, F<sup>3</sup> F<sup>4</sup>, near opposite ends of the shaft F<sup>5</sup>.

Extending from an arm, a, upon a short shaft, a', pivoted in bearings on the rock-shaft a<sup>2</sup> of the lathe, is a bent rod, A', provided with a shoulder, f<sup>2</sup>, which engages the heel c of the flirt C.

Secured to a bracket at one end of the breast-beam by a pivot passing through its angle g is the angle-lever G, the front end, g', of which extends downward, as shown in the drawings, while its rear end is connected by a rod, H, to an arm, h, on the shaft a'. From an arm, h', projecting from the side of the shaft a' opposite to the arm h, a spring, I, extends to and is connected with an eyebolt, h<sup>2</sup>, projecting from one of the swords of the lathe.

In front of the end g' of lever G is the end k of a lever, K, the other end of which extends beside the shipper-handle k'. A second flirt, C', similar in construction to the flirt C, is pivoted to the opposite end of the lathe, and the heel of the flirt C is connected by a wire, f<sup>3</sup>, to a lever, L, pivoted near the flirt C', as shown in the drawings.

N designates the shuttle employed in this stop-motion. In one side of this shuttle is a longitudinal groove, n, communicating with which, near one end, is an oblique notch, n', which slants away from that end of the shuttle which is nearest. Pivoted in the recess of the shuttle, near the end thereof, is the weighted lever P, which is formed with a head, p, at an angle to its length, and a tail, p', bent out of line. Within this shuttle is placed the filling-bobbin, the filling being designed to pass through the wire loop p<sup>2</sup> and over the tail p' of said lever on its way out of the shuttle.



The operation is as follows: The shuttle is thrown along the lathe by the picker-staffs F F', as usual, its position being such that its groove *n* is toward the heads *c'* of the flirts C C', said heads projecting into said groove. The tension of the filling while unbroken holds the head *p* of the lever in the notch *n'* and above the groove *n* of the shuttle. When a break occurs in the filling, the tension being relieved, permits the weighted head *p* of the lever to descend out of the notch *n'* and into the groove *n*. If this occurs during the movement of the shuttle toward the right-hand end of the loom—that is, the end on which the shipper-handle is shown—said head, striking the head *c'* of flirt C, will swing its heel *c* from under the shoulder *f*<sup>2</sup> of the rod A', thereby disengaging the said rod and permitting the spring I to turn shaft *a*, and operate the rod H and the angle-lever G. This allows the spring I to act with a prompt movement and throw out the front end, *g'*, of the angle-lever G, and cause the pivoted lever K to force the shipper-handle from its notch, so as to stop the loom. If the break in the filling should occur on the return-throw of the shuttle a movement of the other flirt, C', would be caused, and through the medium of the connecting-wire *f*<sup>3</sup> and the pivoted lever L the flirt C would be promptly put in action to operate the shipper through the mechanism above described.

The devices herein described are designed to furnish a certain and prompt means for stopping the loom whenever a break in the filling occurs. The action is so speedy as generally to stop the loom before the shed closes, so that the weaver has only to throw the shuttle across and start the loom up again without the trouble of running the loom over until the right shed is found, which is the case in the usual filling stop-motion.

The flirt above described is jointed near the head, being so constructed that the head shall yield as the lever strikes it when the shuttle comes out of the box nearest it, this engagement being caused by the loose filling allowing the weighted head of the lever to drop. In connection with the stop-motion devices described an overshot-preventer is used.

The letter R designates a bar running lengthwise of the reed-cap, and pivoted to it at the ends by arms *r*. This bar R lies just above the yarn when the shed is open. Instead of a single bar several wires may be used. At one of the arms *r* the reed-cap is undercut,

and said arm passes under, projects out behind, and is provided with a perforated end, *r'*. At one side of the arm *r r'* is pivoted a bent two armed lever, S, the upper arm, *s*, of which engages the perforated end *r'*. The lower arm, *s'*, extends down beside the flirt C, and is engaged by the hook on the end thereof to which the wire *f*<sup>3</sup> is secured. Now, if the shuttle should attempt to make an overshot or fly out, it would strike the bar R and operate the arm *r r'* to release the flirt C from the shoulder *f*<sup>2</sup> and operate the stop-motion device in the manner already described.

A shuttle having a lever pivoted in it, one arm of which extends through and across the educt, and the other arm bent at a right angle and extended through an opening in the side of the shuttle and into a long groove formed across said opening and lengthwise of the outer surface or side of the shuttle, the first arm overbalancing the second one, has been used in stop-motions for looms, and is not broadly claimed herein.

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

1. A shuttle, N, having the groove *n* and slanting notch *n'*, and provided with the pivoted weighted lever P, having the tail *p'*, and the loop *p*<sup>2</sup>, in combination with the pivoted flirt C, the bent rod A', provided with the notch *f*<sup>2</sup>, the shaft *a'*, the rod H, spring I, angle-lever G, pivoted lever K, and shipper-handle *k'*, substantially as specified.

2. The combination, with the lathe and the flirts C and C', pivoted to opposite ends of the lathe, of the lever L, and wire *f*<sup>3</sup>, connecting said flirts, the bent rod A', rod H, spring I, shaft *a'*, angle-lever G, lever K, and the shipper-handle *k'*, substantially as specified.

3. The lathe and reed and the bar R, having the arms *r*, the lever S, having arms *s s'*, the flirts C C', and the wire *f*<sup>3</sup> and lever L, in combination with the bent rod A', having shoulder *f*<sup>2</sup>, the rod H, spring I, shaft *a'*, angle-lever G, lever K, and shipper-handle *k'*, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES WILLIAM THOMAS DAVIDSON.  
DOUGLASS GREEN.

Witnesses:

E. F. COZEY,  
G. D. MATHESON.