

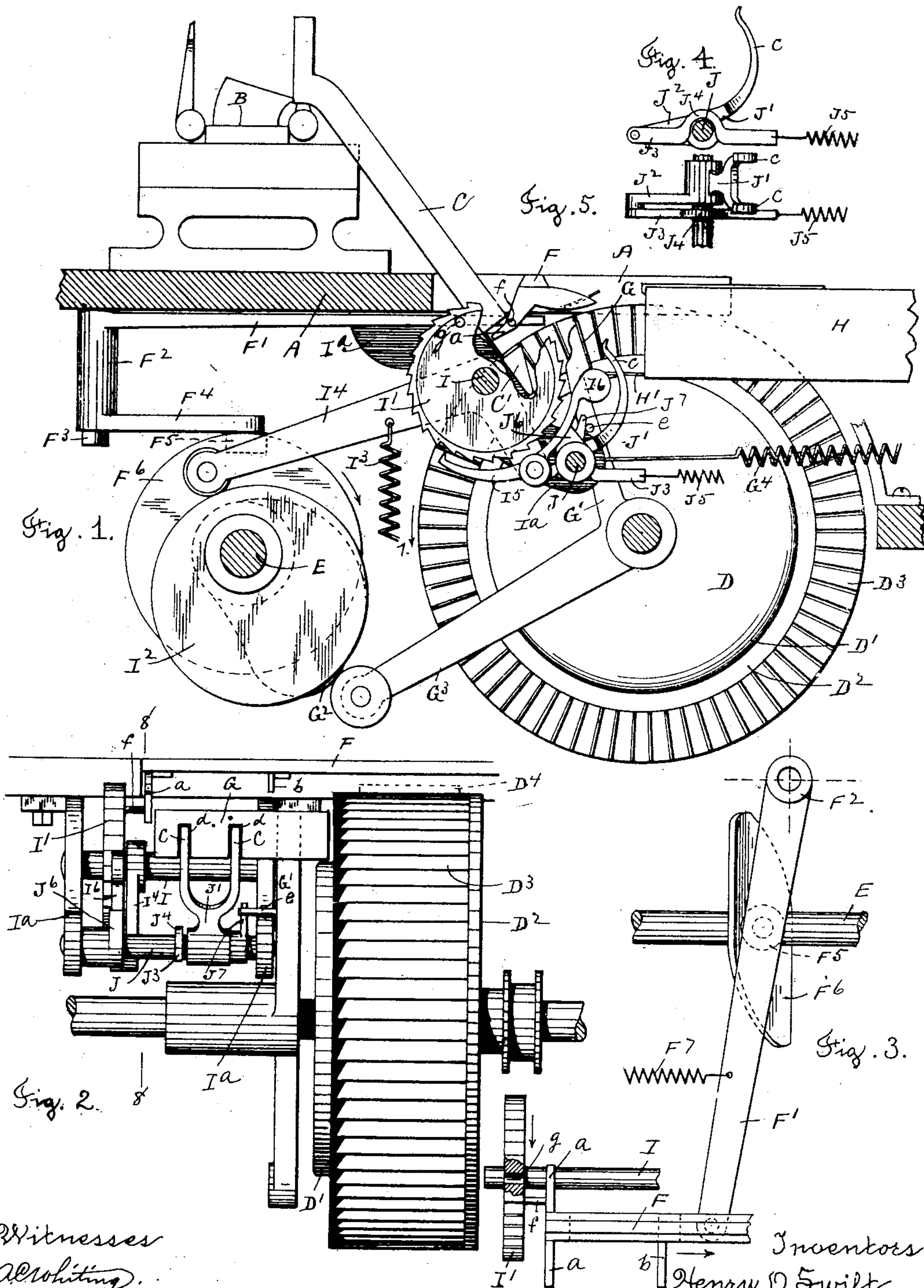
(No Model.)

2 Sheets—Sheet 1.

H. D. & D. W. SWIFT.  
ENVELOPE MACHINE.

No. 545,317.

Patented Aug. 27, 1895.



Witnesses  
A. C. Whitely.  
C. M. Kester.

Inventors  
Henry D. Swift.  
Daniel Wheeler Swift.  
By their Attorney Rufus B. Fowler.

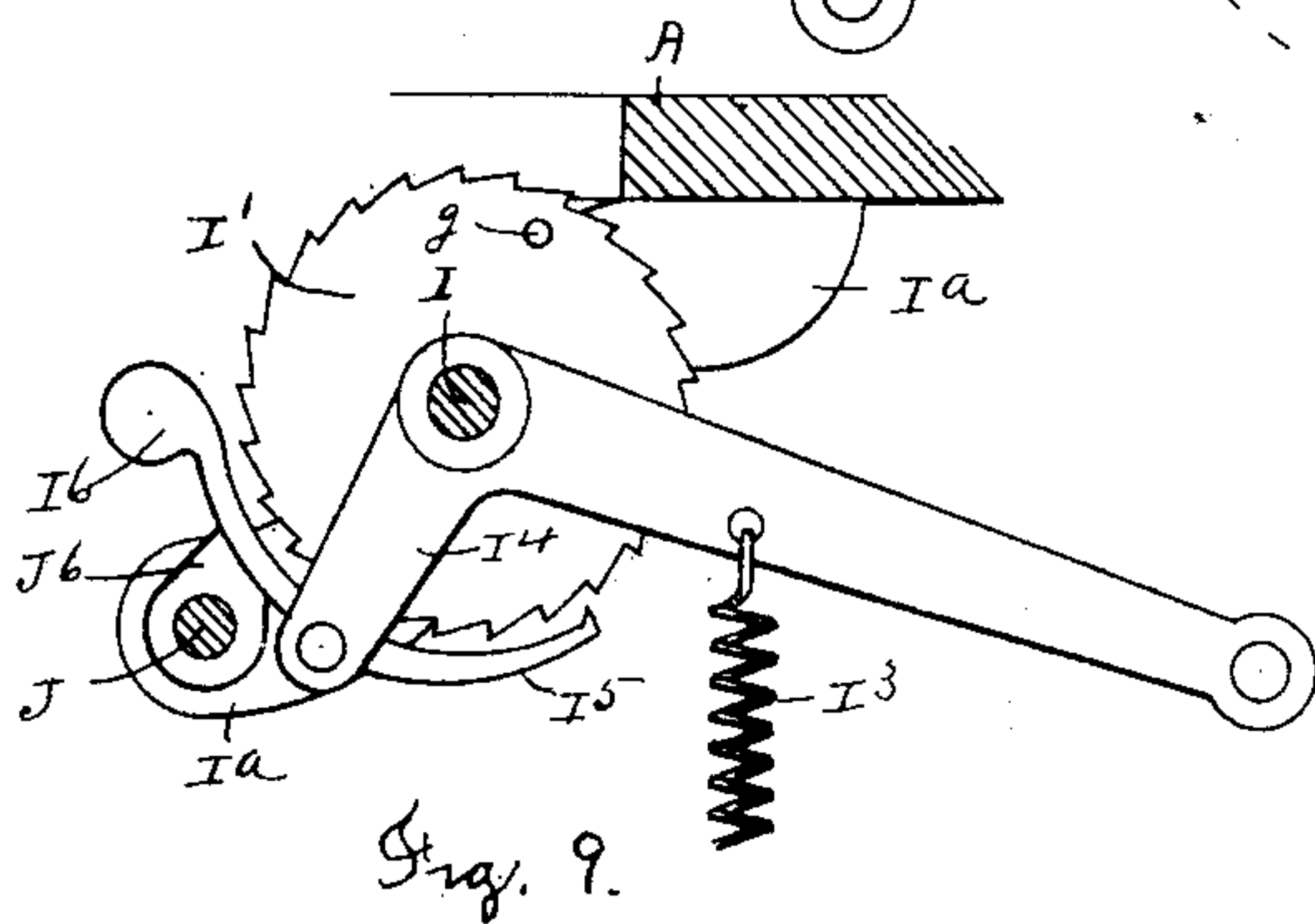
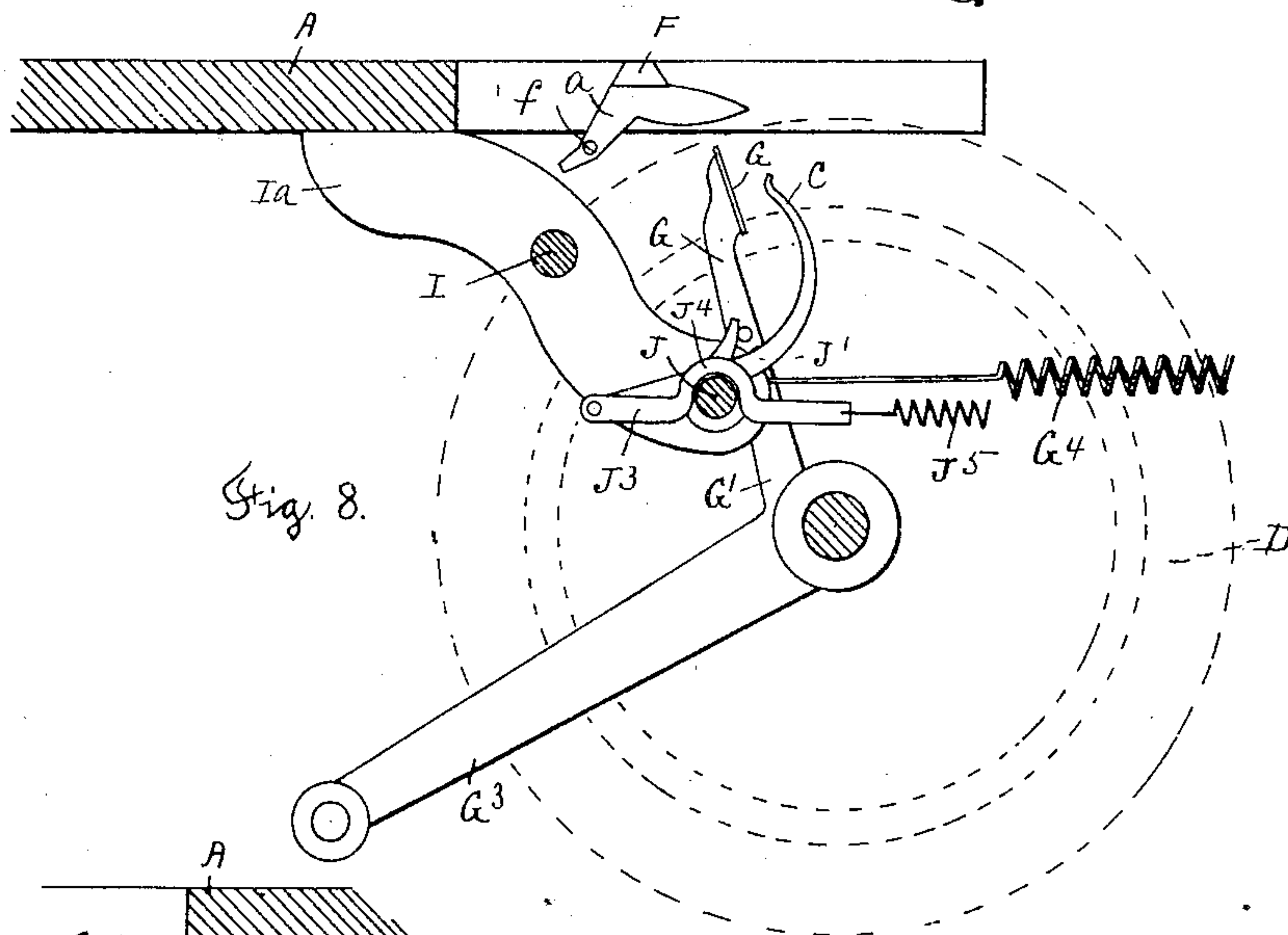
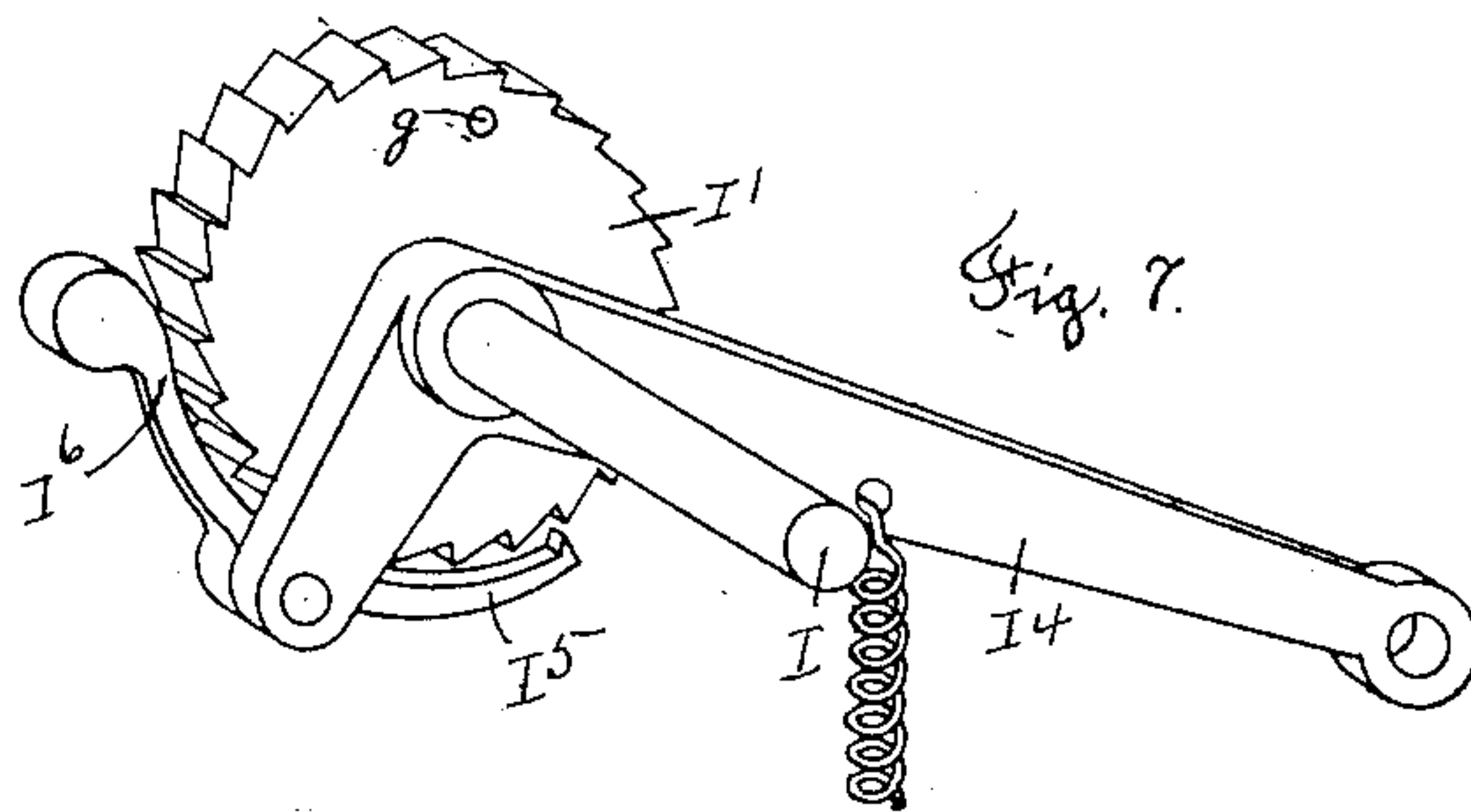
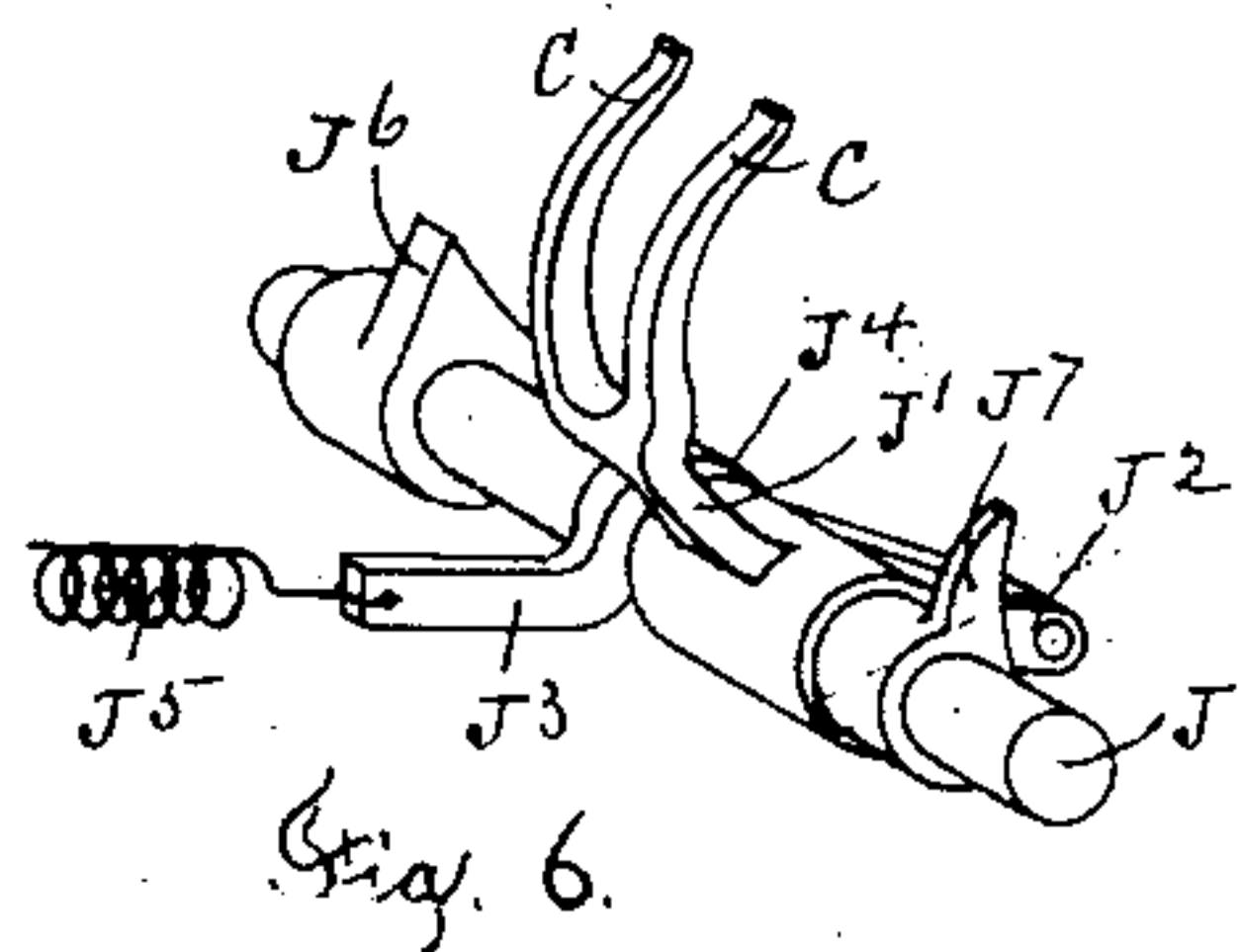
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2 Sheets—Sheet 2.

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Witnesses  
A. L. Whiting.  
Henry W. Fowler.

Inventors  
Henry D. Swift.  
Daniel Wheeler Swift.  
By their Attorneys  
Rufus B. Fowler.



# UNITED STATES PATENT OFFICE.

HENRY D. SWIFT AND DANIEL WHEELER SWIFT, OF WORCESTER, MASSACHUSETTS, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE LOGAN, SWIFT & BRIGHAM ENVELOPE COMPANY, OF SAME PLACE.

## ENVELOPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 545,317, dated August 27, 1895.

Application filed April 21, 1890. Serial No. 348,938. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY D. SWIFT and DANIEL WHEELER SWIFT, citizens of the United States, and residents of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Envelope-Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a view of such portion of an envelope-machine as embodies our invention, the operating parts being represented in side view. Fig. 2 is a front view of the same. Fig. 3 is a top view of one of the actuating-cams, together with those operating parts directly connected therewith. Fig. 4 is a side view of the tripping-finger, by means of which the passage of an envelope into the till is made to actuate the counting mechanism; and Fig. 5 is a top view of the same. Fig. 6 is a perspective view of the rocking shaft J and of the parts carried by said shaft. Fig. 7 is a perspective view of shaft I and of the parts carried upon said shaft. Fig. 8 is a sectional view on line 8 8, Fig. 2; and Fig. 9 is a sectional view on the same plane as that shown in Fig. 8, but looking in the opposite direction.

Similar letters refer to similar parts in the different figures.

Our present invention relates to that part of an envelope-machine which is employed in the operation of counting the finished envelopes; and in the accompanying drawings we have shown only such parts as are directly concerned in the operation of counting the envelopes. The remaining parts of the machine not forming a part of our invention may be of any known construction.

In Fig. 1 of the drawings, A denotes that portion of an envelope-machine commonly known as the "table," upon which the mechanism for gumming and folding the envelope-blank is usually supported.

B represents the bed upon which the envelope-blank is folded.

C is an inclined chute through which the folded envelopes pass downward into a pocket

C' (not shown) in alignment with one of the series of pockets in the rotating drier D, which consists of a drum D' with an outer flange D<sup>2</sup>, from which the fingers D<sup>3</sup> project laterally, the spaces between the fingers forming pockets in which the envelopes are held during the rotation of the drier with their edges projecting radially from the drier, as indicated by the broken line D<sup>4</sup>, Fig. 2, and in position to be engaged by the fingers of the envelope-carrier, as hereinafter set forth. The rotating drier D has an intermittent motion in the direction of the arrow 1, Fig. 1, by means of a pawl-and-ratchet device or other equivalent mechanism, which is not shown in the drawings.

E is the main shaft of the machine carrying the several cams by which the operating parts of the machine are actuated. Sliding in a way formed in the table A is a bar F, forming the envelope-carrier, to which a reciprocating motion is imparted by means of a vibrating lever F', attached to the sleeve F<sup>2</sup>, which is pivoted on a stud F<sup>3</sup>, projecting downward from the table A. From the lower end of the sleeve F<sup>2</sup> an arm F<sup>4</sup> extends forward, carrying a cam-roll, (shown by broken lines F<sup>5</sup>, Figs. 1 and 3,) which rests against the side of the cam F<sup>6</sup> on the main shaft E.

To the sliding envelope-carrier F we attach the finger a, by which the envelope is engaged and carried or pushed into one of the pockets or spaces between the fingers D<sup>3</sup>. The sliding envelope-carrier F also carries a finger b, which serves to push the envelope out of the drier and in front of a pusher-blade G, attached to the upper arm of the bell-crank lever G', to which a reciprocating motion is imparted by means of the cam G<sup>2</sup>, acting on the lower arm G<sup>3</sup> of the bell-crank lever to depress said arm G<sup>3</sup>, which is raised by the spring G<sup>4</sup> in the operation of carrying the envelope forward into the till H. Projecting from the end of the till H are the bars H', with their upper surfaces flush with the floor of the till to support the envelope during the forward movement of the pusher-blade G.

Attached to the shaft I, journaled in the framework of the machine, is a ratchet-wheel



I', containing twenty-five teeth and to which  
 an intermittent motion is imparted by means  
 of a cam I<sup>2</sup> on the main shaft E and a spring  
 I<sup>3</sup> through the bell-crank lever I<sup>4</sup> and pawl I<sup>5</sup>,  
 5 pivoted on the short arm of the lever I<sup>4</sup>.  
 Journaled in the frame of the machine below  
 the shaft I we place a rocking shaft J, to  
 which is attached the tripping-finger J', which  
 is curved upwardly and bifurcated, forming  
 10 the two prongs *c c*, extending into the path of  
 the envelope as it is carried forward into the  
 till H. To the arm J<sup>2</sup> of the tripping-finger  
 is pivoted the bar J<sup>3</sup>, bent at J<sup>4</sup> and having a  
 spring J<sup>5</sup>, so attached that when the tripping-  
 15 finger is raised, as shown in the drawings, the  
 line of strain exerted by the spring will pass  
 below the center of the shaft J, as shown in  
 Fig. 4, having a tendency to draw the arm J<sup>2</sup>  
 downward, rocking the shaft J and carrying  
 20 the arm J<sup>6</sup> against the weighted arm I<sup>6</sup> of the  
 pawl I<sup>5</sup>, depressing the pawl and disengaging  
 it from the ratchet-wheel I'. The pusher-  
 blade G is provided with the notches *d d* to  
 allow it to pass the prongs *c c* without mov-  
 25 ing the tripping-finger. When an envelope  
 is interposed between the pusher-blade and  
 the prongs *c c*, the forward movement of the  
 blade G will carry the prongs *c c* forward,  
 raising the arm J<sup>2</sup> until the strain of the  
 30 spring J<sup>5</sup> is brought above the center of the  
 rocking shaft J, when the tension of the spring  
 will raise the arm J<sup>2</sup> and throw the prongs *c c*  
 downward below the path of the advancing  
 envelope, rocking the shaft J and withdraw-  
 35 ing the arm J<sup>6</sup> from the weighted arm I<sup>6</sup> and  
 allowing the pawl to rise and engage a tooth  
 of the ratchet-wheel as it is moved forward  
 by the action of the cam I<sup>2</sup>. The ratchet-  
 wheel I' is thus moved one tooth as the  
 40 pusher-blade G advances to carry the envel-  
 ope into the till H. When the pusher-blade  
 G is moved back by the action of the cam G<sup>2</sup>,  
 a pin *e*, extending from the side of the upper  
 arm G', is brought in contact with an arm J<sup>7</sup>,  
 45 attached to and extending upward from the  
 rocking shaft J, by which the shaft J is rocked,  
 carrying the prongs *c c* of the tripping-lever  
 upward into the path of the envelope and  
 bringing the short arm J<sup>6</sup> against the weighted  
 50 arm I<sup>6</sup>, again releasing the pawl I<sup>5</sup> from the  
 teeth of the ratchet-wheel I'. So long as the  
 pusher-blade advances without an envelope  
 in front of it it will pass over the prongs *c c*  
 without moving the tripping-finger; but in  
 55 case an envelope is placed in front of the  
 blades as it advances it will carry the prongs  
*c c* forward until the tension of the spring J<sup>5</sup>  
 rocks the shaft J, allowing the pawl I<sup>5</sup> to en-  
 gage the ratchet-wheel and move it forward  
 60 one tooth.

On the finger *a* on the sliding envelope-car-  
 rier F is a pin *f*, projecting laterally, which is  
 brought in contact with the side of the ratchet-  
 wheel as the sliding envelope-carrier F is  
 65 moved by the spring F<sup>7</sup>, Fig. 3, the ratchet  
 serving as a stop-plate to limit the movement  
 of the sliding bar as it carries the envelopes

from the drier in front of the pusher-blade  
 G. Each envelope is therefore left in exactly  
 the same position in front of the blade G, 70  
 causing all the envelopes to be carried into  
 the till in true alignment with each other.  
 The sliding bar F is stopped by the ratchet,  
 as described above, at a point a little short of  
 the limit of the throw of the cam F<sup>6</sup>, and the 75  
 envelopes in the till are divided into bunches  
 of twenty-five each, as follows: The ratchet I'  
 is provided with a hole *g*, which at each com-  
 plete revolution of the ratchet-wheel is  
 brought into the path of the pin *f*, allowing 80  
 the sliding bar F to pass a trifle farther as  
 each twenty-fifth envelope is carried in front  
 of the pusher-blade, the movement of the  
 sliding bar being then limited by the cam F<sup>6</sup>.  
 Each twenty-fifth envelope will therefore 85  
 project a little beyond the rest of the envel-  
 ope in the till and thereby mark them off into  
 bunches of twenty-five in a bunch. The num-  
 ber of envelopes in a bunch can be readily  
 varied by varying the number of teeth in the 90  
 ratchet-wheel.

Having described in detail the construction  
 of our improved counting mechanism for en-  
 velope-machines, its operation may be briefly 95  
 summarized as follows: When the folded en-  
 velope is delivered through the chute C into  
 position in alignment with one of the pockets  
 in the drier D, it is pushed by means of the  
 finger *a* on the sliding bar F into the drier.  
 The drier is then rotated the distance of one 100  
 of the pockets, bringing the projecting edge  
 of an envelope in the drier in front of the  
 finger *b*, which serves to carry the dried en-  
 velope out of the drier before the pusher-  
 blade G, which then advances, by means of 105  
 the spring G<sup>4</sup>, to carry the envelope into the  
 till H. The envelope as it is moved forward  
 by the pusher-blade is brought in contact  
 with the prongs *c c* of the tripping-finger, car-  
 rying them forward and raising the arm J<sup>2</sup> 110  
 until the strain of the spring J<sup>5</sup> is brought  
 above the center of the rocking-shaft J, when  
 the shaft J is suddenly rocked, carrying the  
 prongs *c c* out of the path of the advancing  
 envelope and removing the short arm J<sup>6</sup> from 115  
 beneath the weighted arm I<sup>6</sup> and allowing the  
 pawl I<sup>5</sup> to engage and move the ratchet-wheel  
 one tooth while the envelope is being carried  
 into the till H. As the pusher-blade moves  
 back again the projecting pin *e* will engage 120  
 the arm J<sup>7</sup>, rocking the shaft J, raising the  
 prongs *c c* into the position to be again moved  
 by an advancing envelope and bringing the  
 short arm J<sup>6</sup> in contact with the weighted arm  
 I<sup>6</sup>, thereby withdrawing the pawl I<sup>5</sup> from the 125  
 teeth of the ratchet-wheel I'.

The employment in the counting mechan-  
 ism of an envelope-machine, of a ratchet-  
 wheel intermittently rotated by a weighted  
 pawl which is carried into engagement with 130  
 the ratchet-wheel by gravity, and a rocking-  
 shaft having an attached finger interposed in  
 the path of the envelope as it is pushed into  
 the till whereby the shaft is rocked, and an



arm carried by said rocking shaft arranged to bear against the weighted pawl and disengage it from the ratchet-wheel, except as an envelope passes into the till, and withdraw the arm from the pawl by the rocking of the shaft, forms no part of our present invention, the above-mentioned features having been shown and claimed in our pending application, Serial No. 199,954, filed April 23, 1886.

It has been customary heretofore in the counting mechanism of envelope-machines to either carry the twenty-fifth envelope beyond the remaining envelopes in the till by an independent mechanism from that employed in placing the envelope in front of the pusher-blade or by an oblique guide-bar against which the envelope was pushed as it was carried into the till by the pusher-blade.

The essential feature of our present invention consists in the use of an envelope-carrier having a variable motion whereby the envelopes are placed in different positions in front of the pusher-blade. The pin *e* in our present construction also acts upon an arm *J'* extending at nearly right angles upward from the rocking shaft *J* and at nearly right angles to the motion of the pin *e*, so that the shaft *J* will be rocked by a slight movement of the lever *G'* and pin *e*.

What we claim as of our invention, and desire to secure by Letters Patent, is—

1. In an envelope machine, the combination with a till to receive the finished envelopes, of a pusher blade having a reciprocating motion to carry the envelopes into said till, and a reciprocating envelope carrier by which the finished envelopes are brought in front of said pusher blade, said envelope carrier having a variable motion, whereby certain of the envelopes are placed in a different posi-

tion in front of said pusher blade, substantially as described.

2. The combination, in an envelope machine, of a till to receive the envelopes, a reciprocating pusher blade, to carry the envelopes into said till, an envelope carrier by which the envelopes are carried in front of said pusher blade, and a stop plate by which the motion of said carrier is limited and the position of the envelopes thereby determined, substantially as described.

3. In an envelope machine, the combination with a till to receive the finished envelopes, a reciprocating pusher blade, by which the envelopes are carried into said till and an envelope carrier by which the envelopes are placed in front of said pusher blade, of a stop plate by which the motion of said carrier is limited, said stop-plate being provided with an aperture whereby the motion of said carrier is varied, substantially as described.

4. In an envelope machine, the combination with a till to receive the envelopes, an envelope carrier, by which the envelopes are carried into said till, and a stop plate for limiting the motion of said carrier, said stop plate consisting of a wheel rotated by a series of intermittent motions equaling the number of envelopes in a bunch, and being provided with an aperture, whereby the carrier is allowed to carry certain of the envelopes farther than the envelopes which constitute the bunch, substantially as described.

Dated the 16th day of April, 1890.

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