

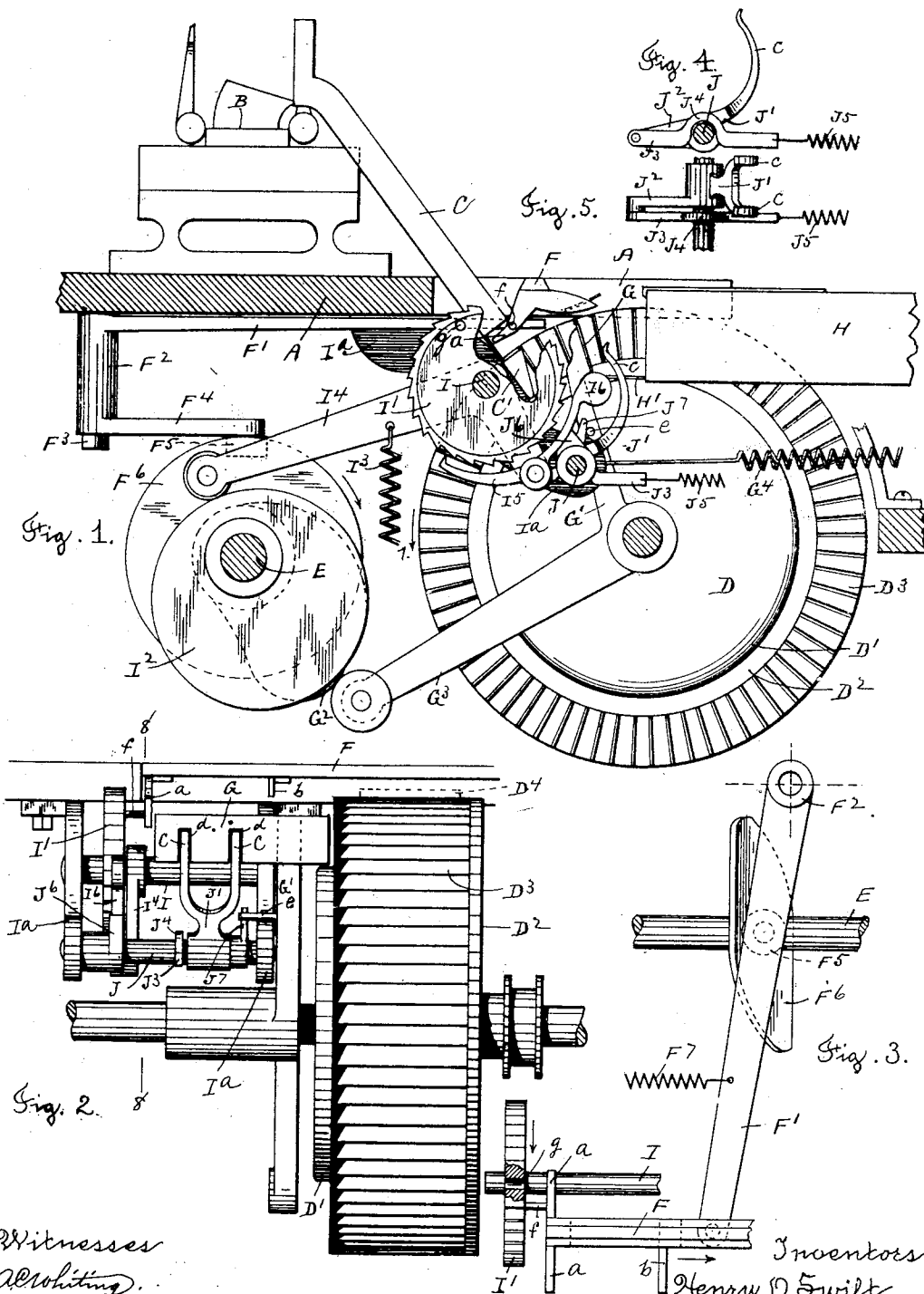
(No Model.)

2 Sheets—Sheet 1.

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

No. 545,317.

Patented Aug. 27, 1895.



Witnesses
A. Whiting.
Emma Kester.

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

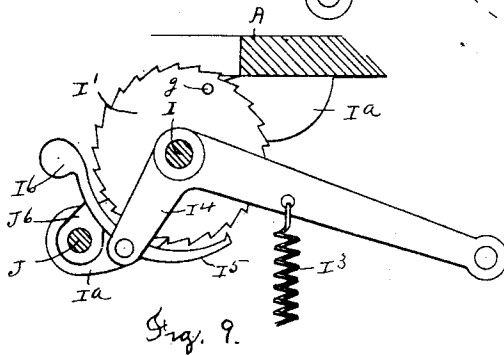
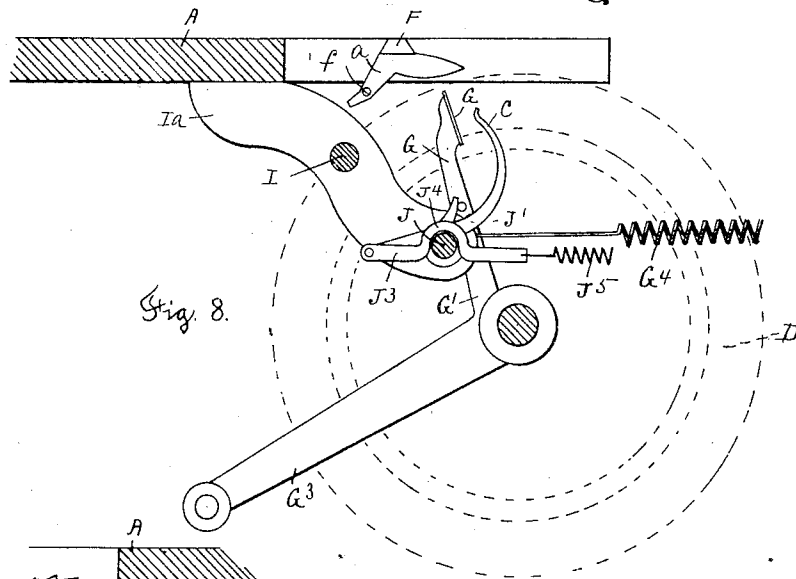
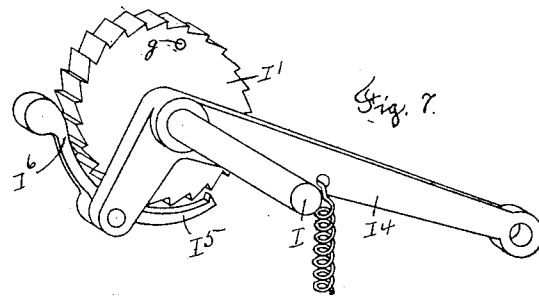
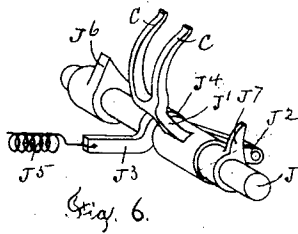
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2 Sheets—Sheet 2.

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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 D², from which the fingers D³ 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 D⁴, 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 F², which is pivoted on a stud F³, projecting downward from the table A. From the lower end of the sleeve F² an arm F⁴ extends forward, carrying a cam-roll, (shown by broken lines F⁵, Figs. 1 and 3,) which rests against the side of the cam F⁶ 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 D³. 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 G², acting on the lower arm G³ of the bell-crank lever to depress said arm G³, which is raised by the spring G⁴ 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 I² on the main shaft E and a spring
 I³ through the bell-crank lever I⁴ and pawl I⁵,
 5 pivoted on the short arm of the lever I⁴.
 Journalled 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 J² of the tripping-finger
 is pivoted the bar J³, bent at J⁴ and having a
 spring J⁵, 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 J²
 downward, rocking the shaft J and carrying
 20 the arm J⁶ against the weighted arm I⁶ of the
 pawl I⁵, 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 J² until the strain of the
 30 spring J⁵ is brought above the center of the
 rocking shaft J, when the tension of the spring
 will raise the arm J² and throw the prongs *c c*
 downward below the path of the advancing
 envelope, rocking the shaft J and withdraw-
 35 ing the arm J⁶ from the weighted arm I⁶ 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 I². 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 G²,
 a pin *e*, extending from the side of the upper
 arm G⁴, is brought in contact with an arm J⁷,
 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 J⁶ against the weighted
 50 arm I⁶, again releasing the pawl I⁵ 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 J⁵
 rocks the shaft J, allowing the pawl I⁵ 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 F⁷, 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 F⁶, 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 F⁶.
 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
 summarized as follows: When the folded en- 95
 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 G⁴, 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 J² 110
 until the strain of the spring J⁵ 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 J⁶ from 115
 beneath the weighted arm I⁶ and allowing the
 pawl I⁵ 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 J⁷, 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 J⁶ in contact with the weighted arm
 I⁶, thereby withdrawing the pawl I⁵ 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*⁷ 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*⁷ 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 position

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.

HENRY D. SWIFT.

DANIEL WHEELER SWIFT.

Witnesses:

ARTHUR H. SWIFT,

RUFUS B. FOWLER.