

(No Model.)

2 Sheets—Sheet 1.

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

No. 542,354.

Patented July 9, 1895.

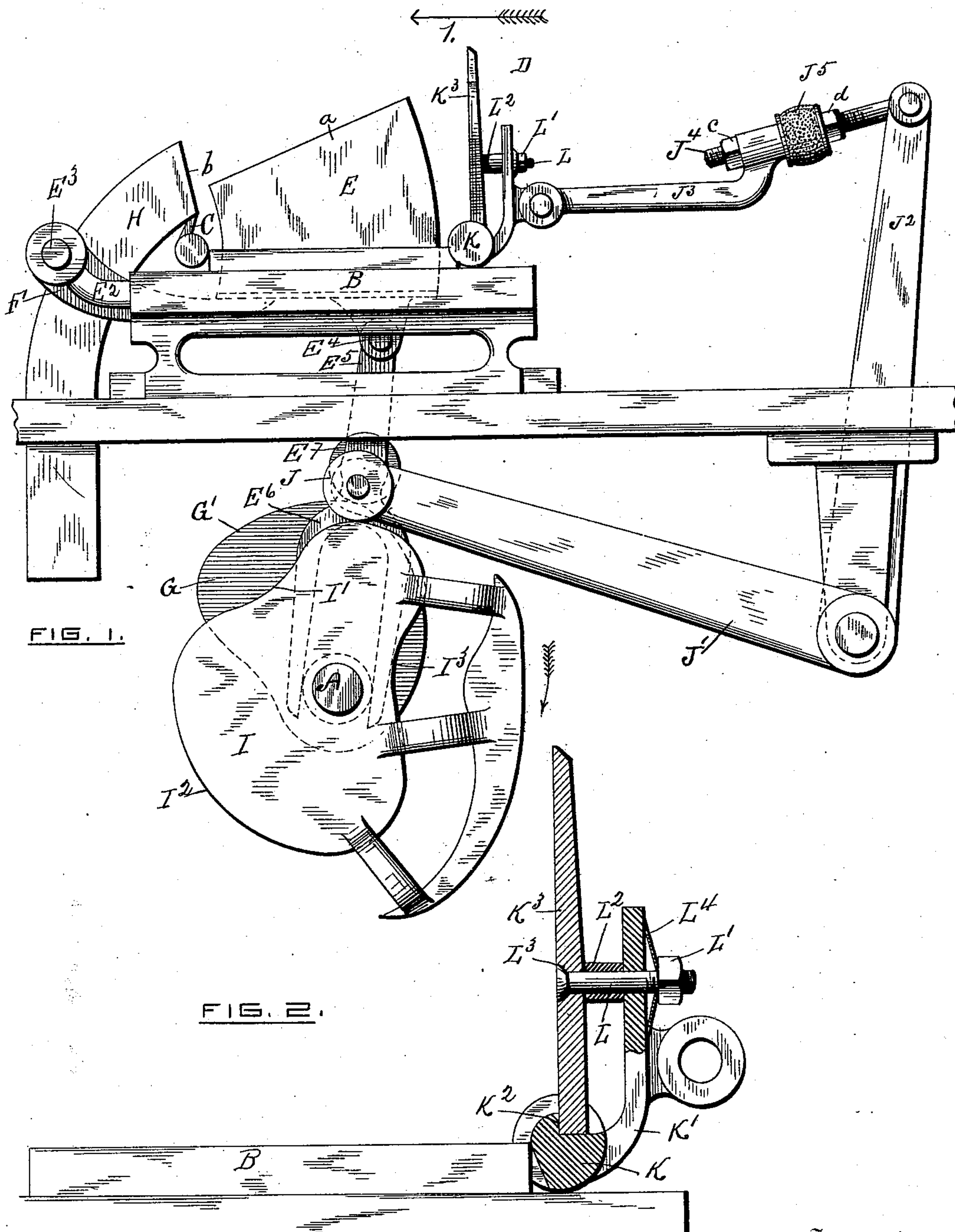


FIG. 1.

FIG. 2.

Witnesses

Chas. F. Sturges
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Inventors

Henry D. Swift
Dwight W. Swift
By Their Attorney
Rufus B. Fowler

(No Model.)

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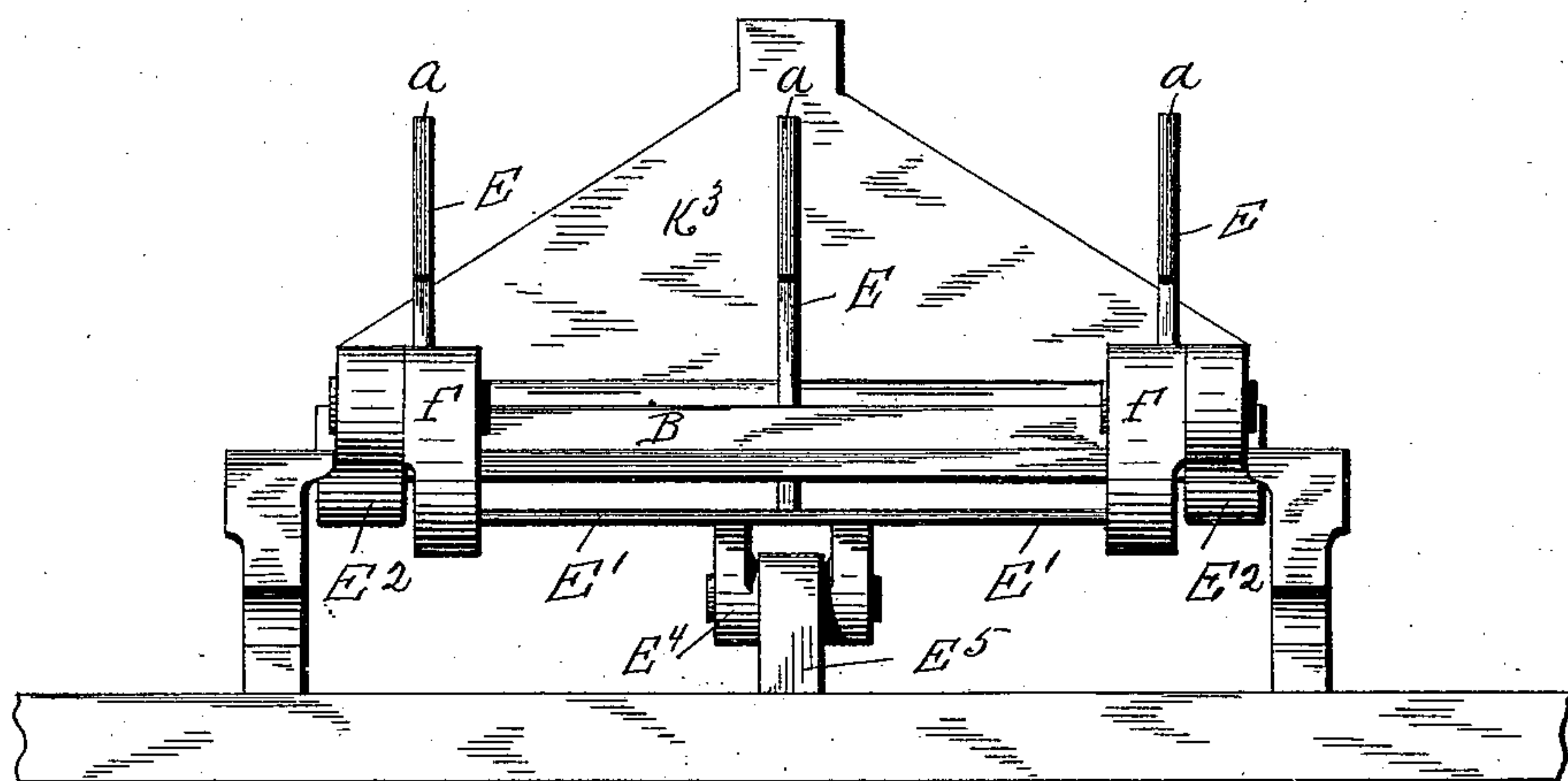
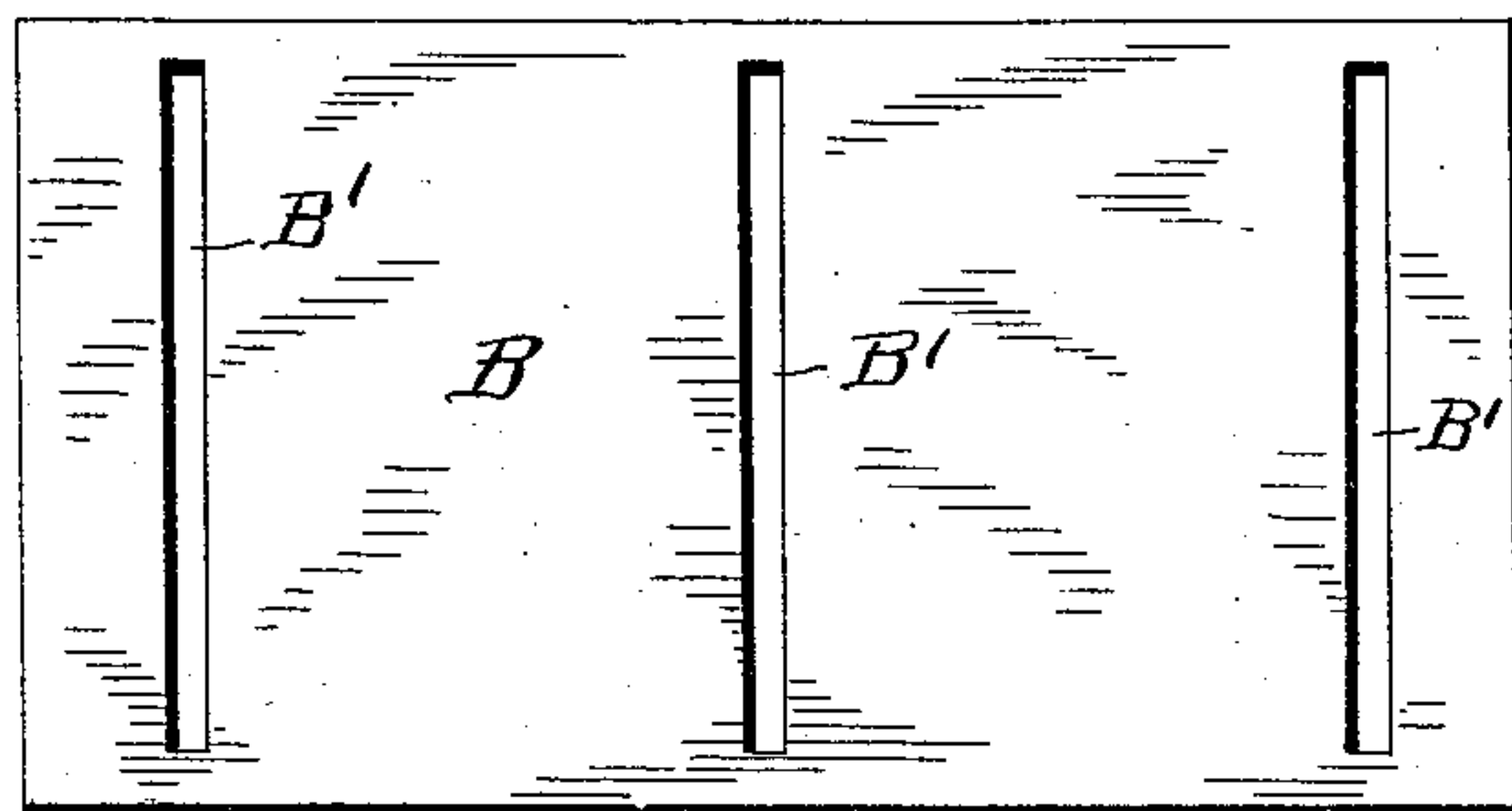
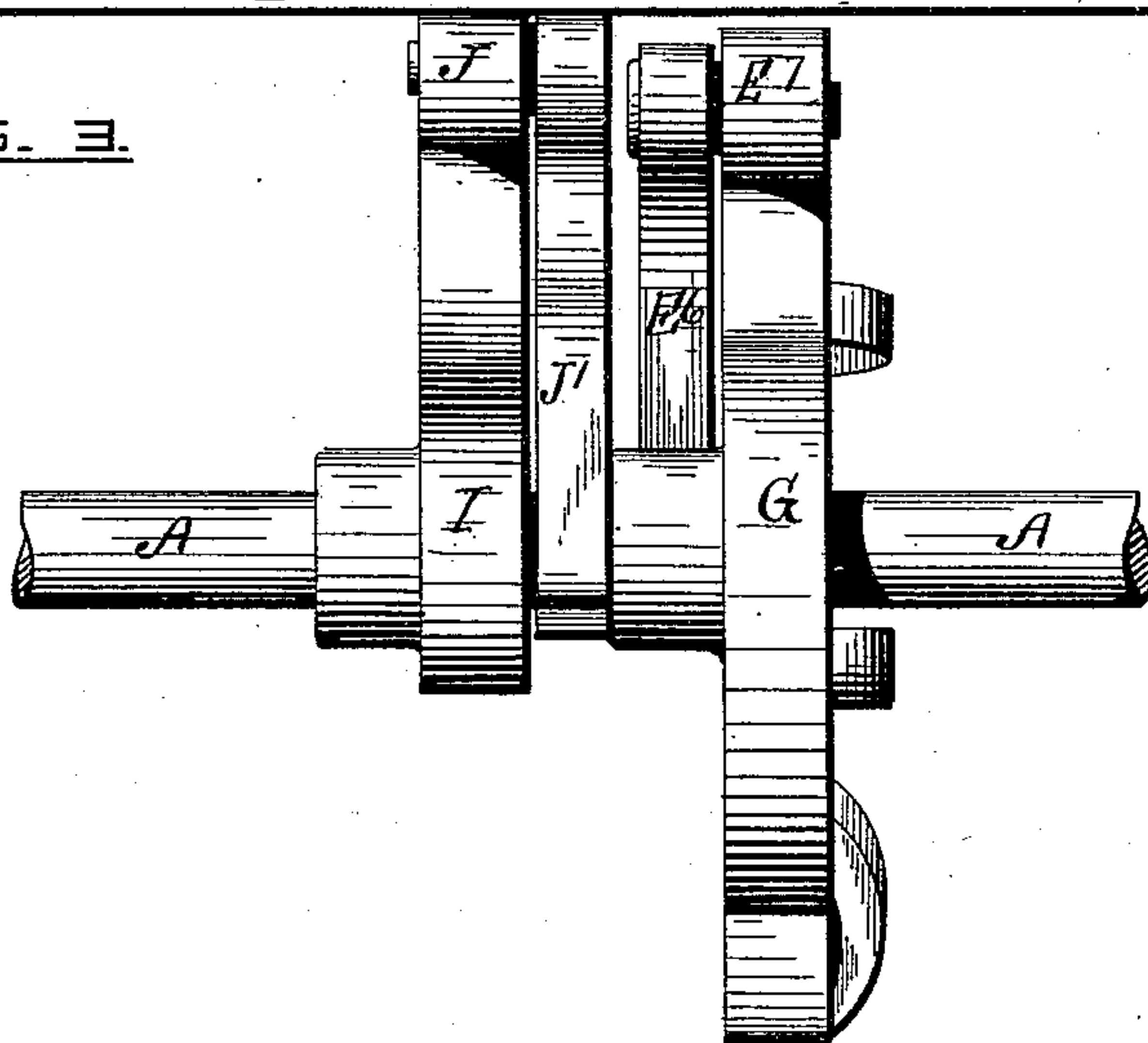


FIG. 3.



Witnesses

Chas. F. Schuch
H. M. Fowler

Inventor.

FIG. 4.

Henry D. Swift
Dwight Swift
By *Ref. Fowler*
This Attorney

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. 542,354, dated July 9, 1895.

Application filed April 4, 1887. Serial No. 233,639. (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, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Envelope-Machines, of which the following is a specification, containing a full, clear, and exact description of the same, accompanied by drawings illustrating that portion of an envelope-machine which embodies our invention, and in which—

Figure 1 is a side view of the portion of the folding mechanism of an envelope-machine to which our invention relates. Fig. 2 is a side view of a portion of the bed on which the envelope is folded and also showing the back-flap folder in sectional view. Fig. 3 is a front view of the mechanism shown in Fig. 1, but with the seal-flap folder and chute omitted; and Fig. 4 is a top view of the bed upon which the envelope is folded.

Like letters refer to like parts in the different figures.

Our invention relates to that portion of an envelope-machine by which the operation of folding the envelope-blank is performed; and it consists in providing means whereby the envelope is delivered from the folding mechanism, and also in the construction of the back-flap folder, as hereinafter described, and set forth in the claims.

In the accompanying drawings, A denotes the main driving-shaft of the machine, properly journaled in the framework, which is not shown.

B is the bed upon which the envelope-blank is folded by means of hinged folding blades or leaves, as is common in envelope-machines. In the drawings only the seal-flap folder C and the back-flap holder D are shown, the end-flap folders being omitted, as they are not concerned in our present invention, and their omission exhibits the remaining parts more clearly.

The bed B is provided with slots or openings B' to receive the blades E of the device, which we term the "fork," whose office is to raise the folded envelope from off the bed and sustain it in a position to be delivered from the

folding mechanism into a chute or other receptacle, and which comprises a bar E', to which the blades E are attached, having at each end the curved prongs F, pivoted at E³ to arms E², attached to and projecting from the bed B.

The bar E' is provided at its central section with the lugs E⁴, to which the forked bar E⁵ is hinged. The bar E⁵ has a fork E⁶, which incloses the shaft A and carries the cam-roll E⁷, resting on and actuated by the cam G on the main shaft A, by which the blades are allowed to fall during the operation of folding the envelope-blank, so their upper edges are flush with the upper surface of the bed B, and when the envelope has been folded the rotation of the cam G elevates the blades E to the position shown in Fig. 1, carrying the folded envelope up, supported by their upper edges a, which, by the rotation of the fork upon its center E³, assume an inclined position, as seen in Fig. 1, with the side next the curved chute H the lowest and holding the envelope in proper alignment to be delivered into the open end b of the chute H. During the continued rotation of the shaft A the cam G will sustain the blades E in the position shown in Fig. 1, as the cam-roll E⁷ is held up by the concentric surface G' of the cam G. At the same time the cam I is rotated beneath the cam-roll J, which falls into the depression I', allowing the free end of the bell-crank lever J' to fall and carrying its vertical arm J² forward and imparting a short and quick movement in the direction of the arrow 1 to the back-flap folder D, causing it to strike against the edge of the envelope as it rests upon the upper edges of the blades E of the fork, pushing it with a sharp quick action into the end of the chute H. The further rotation of the shaft A allows the cam-roll E⁷ to fall, depressing the blades E and bringing their upper edges flush with the upper surface of the bed B and raising the cam-roll J upon the concentric surface I² of the cam I, during the period that an envelope-blank is brought upon the bed B in position to be folded by the action of the folding blades or leaves, the cam-roll J being carried down by the depression I³ in the cam I and carrying the back-flap

folder over on the bed B, firmly pressing the interposed envelope in the manner usual in envelope-machines. In order to allow the back-flap folder to yield, in case the envelope-blank presents any inequalities of surface, we construct the folder as hereinafter described, and shown in the drawings.

K is a spindle capable of an oscillating motion and having an arm K', to which the link J³ is pivoted. A channel is made in the oscillating spindle K, forming a shoulder K², against which the front lower edge of the plate K³ rests. The plate K³, which is pressed directly upon the back flap of the envelope, is connected to the arm K' by a screw-threaded bolt L and nut L'. Between the plate K³ and the arm K' we place a sleeve L² in order to hold the plate K³ parallel with and the required distance from the arm K'. The head L³ of the bolt L is convex on its under side and rests in a concave socket in the plate K³, so as to allow a slight oscillating motion of the plate K³ on the head of the bolt, and between the arm K' and the nut L' we place an elastic washer L⁴, which yields as a pressure is brought against one side of the plate K³, rocking it on the head of the bolt L and end of the sleeve L², drawing the bolt through the arm K' and compressing the elastic washer L⁴, whose tension will draw the bolt back through the arm and restore the plate K³ to a position parallel with the arm L'.

The link J³ is connected with the vertical arm J² of the bell-crank lever by a screw-threaded bolt J⁴, which passes loosely through the end of the link J³ and is held by the nuts c d. Between the end of the link and the nut d we place an elastic washer J⁵, consisting of a block of rubber or an elastic coiled spring, for the purpose of permitting the plate K³ and its connected arm K' to yield in case the plate K³ meets an obstruction in the operation of folding an envelope.

In the accompanying drawings we have shown only those portions which embody our present invention and those parts immediately connected with them, as the construction and arrangement of other parts of the machine may be varied in any of the well-known methods of constructing envelope-making machinery.

We are aware that mechanism has been employed for the purpose of delivering the envelope from the folding mechanism in which the envelope has been raised from the bed upon which the envelope is folded. Such we do not herein claim broadly; but in our present invention the device by which the envelope is raised is pivoted in front of the bed, so the blades supporting the envelope have their upper surfaces inclined, so the envelope is supported upon the inclined surfaces and more readily moved off and delivered into the chute. A yielding connection between the folding-plate employed in folding the back flap and its actuating-cam, so the folding-plate can yield to any inequalities of the en-

velope as it is folded, has been used heretofore; but the use of an elastic washer in the link J³ we believe to be new. Our yielding devices also embody a novel method of attachment of the folding-plate K³ to the arm K', which permits the plane of the plate K³ to be varied with reference to the plane of the bed B.

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

1. In the folding mechanism of an envelope machine, the combination with a bed upon which the envelope is folded and a chute to receive the envelope from said folding bed, of a series of envelope raising and supporting blades capable of an angular movement in a vertical plane and connected actuating mechanism, by which an angular movement is imparted to said blades, whereby their upper edges are raised from a position substantially parallel with the folding bed to a position at an angle vertical and in alignment with the receiving chute, and mechanism delivering an envelope from the inclined upper edges of said supporting blades into said receiving chute substantially as described.

2. In the folding mechanism of an envelope machine, the combination with a bed upon which the envelope is folded and envelope supporting blades which move in vertical planes through openings in said bed, whereby the folded envelope is raised from the bed to a position inclined thereto, of a blade pivoted at the side of the bed and having a short vibratory motion against the edge of the raised envelope, substantially as described.

3. In the folding mechanism of an envelope machine, the combination with a bed on which the envelope is folded, and a vibrating blade or leaf for folding the back-flap of the envelope having connected actuating mechanism, substantially as described, of a yielding device, consisting of the link J³, screw-threaded bolt J⁴, nuts c, d, and elastic washer J⁵, substantially as described.

4. In the folding mechanism of an envelope machine, the combination with a bed upon which the envelope is folded, of an arm K', pivoted at the side of the bed and having a vibratory motion, a bolt L, carried by said vibratory arm and having a convex head L³, entering a concave socket in the folding plate, a folding plate K³, carried on said bolt, a sleeve L², placed between said vibratory arm and said folding plate, said folding plate being capable of a slight oscillating motion on said bolt, by which the plane of the folding plate is varied with reference to the plane of the bed, substantially as described.

5. In the folding mechanism of an envelope machine, the combination with a bed upon which the envelope is folded, of an oscillating spindle K having an arm K', folding plate K³ having a yielding connection with the arm K' by means of a screw threaded bolt L, nut L', sleeve L² and elastic washer L⁴, substantially as described.

6. In the folding mechanism of an envelope machine, the combination with a bed upon which the envelope is folded, of an oscillating spindle K provided with a shoulder K², an arm K' extending from said spindle, a folding plate K³ having its edge resting against said shoulder K², but not attached thereto, said folding plate having a yielding action

with the arm K' by means of a screw threaded into bolt L, nut L', sleeve L² and elastic washer L⁴, substantially as described.

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Witnesses:

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