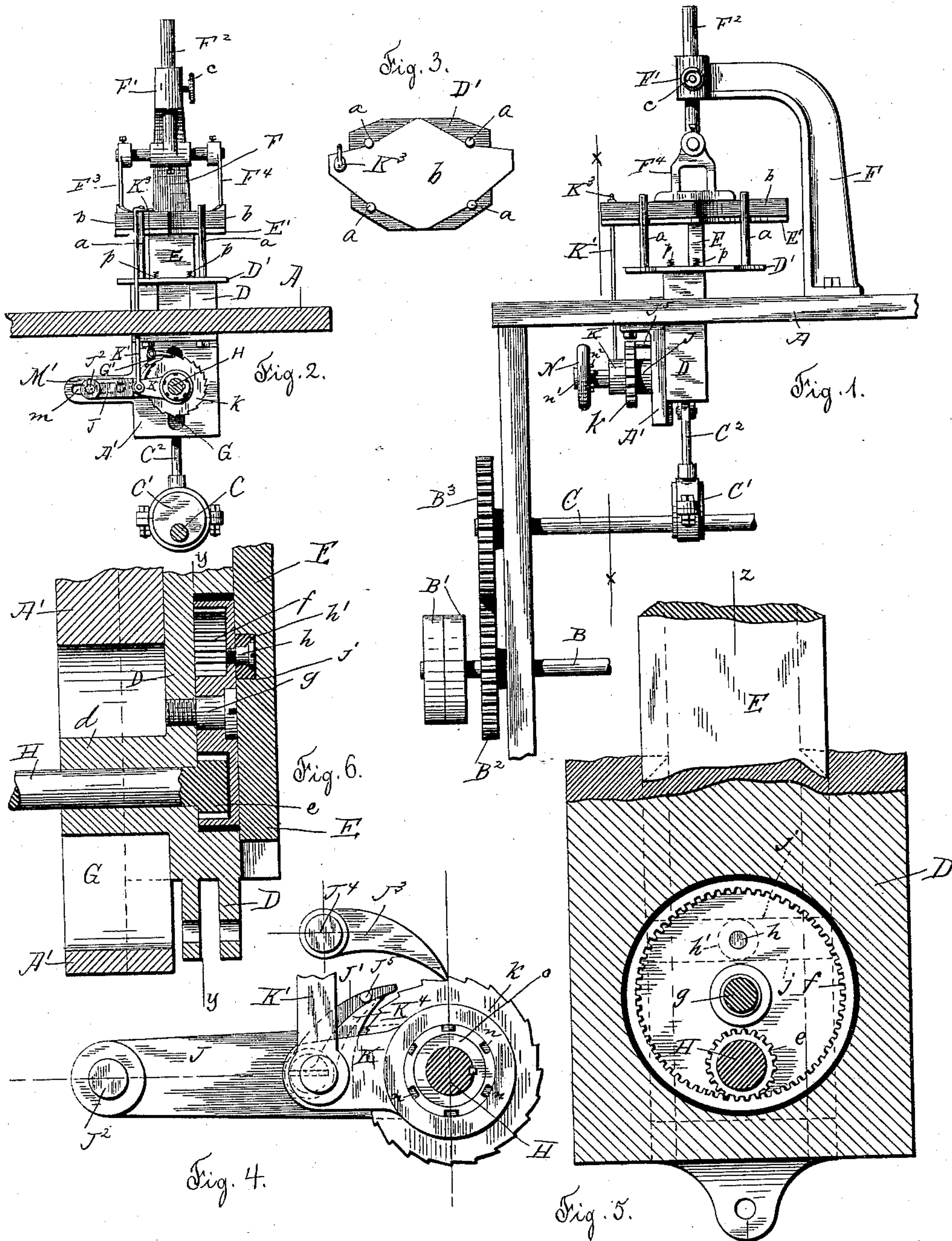


(No Model.)

E. M. LOW.  
APPARATUS FOR FEEDING PAPER.

No. 435,100.

Patented Aug. 26, 1890.



Witnesses  
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# UNITED STATES PATENT OFFICE.

EVERETT M. LOW, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE EMERSON, LOW & BARBER COMPANY, OF SAME PLACE.

## APPARATUS FOR FEEDING PAPER.

SPECIFICATION forming part of Letters Patent No. 435,100, dated August 26, 1890.

Application filed July 5, 1888. Serial No. 279,074. (No model.)

*To all whom it may concern:*

Be it known that I, EVERETT M. LOW, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Apparatus for Feeding Paper, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front view of my improved apparatus with a portion of the supporting-frame. Fig. 2 is a side view of the same in section on line X X, Fig. 1. Fig. 3 is a top view of the table for holding the paper to be fed. Fig. 4 is an enlarged view of the ratchet-wheel and its pawls by which an intermittent feeding motion is imparted to the blank or paper-holding table. Fig. 5 shows a portion of the sliding plates supporting the paper-holding table in sectional view on line Y Y, Fig. 6; and Fig. 6 represents in sectional view a portion of the paper-table supporting-slides, together with part of their actuating mechanism, the plane of the sectional view being indicated by line Z Z, Fig. 5.

Similar letters refer to similar parts in the different figures.

The object of my present invention is to provide mechanism by which a pile of blanks may be fed to an envelope-machine, printing-press, paper-bag machine, or other analogous purposes in which it is required to present a pile of blanks at stated intervals to the action of the machine.

In the accompanying drawings I have shown my improved paper-feeding mechanism as applied to the purpose of feeding a pile of envelope-blanks to the operation of the gumming mechanism, and only so much of the gumming mechanism is shown as is required to fully set forth the arrangement and operation of that portion of the mechanism embodying my invention.

A A denote a portion of the supporting-frame, B the main shaft, having a belt-pulley B', and a gear-wheel B<sup>2</sup>, which engages a similar gear-wheel B<sup>3</sup> on the shaft C, carrying an

eccentric C', connected by a link C<sup>2</sup> with a sliding plate D, sliding in ways upon the stationary stand A', attached to the frame of the machine.

To the upper end of the slide D is attached a plate D', which I term the "gage-table," having four upright pins *a a a a*, extending upwardly from its upper surface and between which the pile of envelope-blanks is placed.

Sliding in ways in the sliding plate D is a sliding plate E, supporting a plate E', attached to its upper end, which I term the "blank-table," and upon which the pile *b* of envelope-blanks is placed.

F denotes a bracket attached to the upper side of the horizontal part of the frame and having a sleeve F', holding the rod F<sup>2</sup>, which is held at the desired vertical height by means of the set-screw *c*, and which supports the gumming-bars F<sup>3</sup> F<sup>4</sup>, to the under side of which gum is applied by means of a roll having a reciprocating motion, and which is not shown in the drawings, as it is not concerned with my present invention.

At the beginning of the operation of feeding the pile of blanks the blank-table is allowed to rest upon the gage-table, and the pile of envelope-blanks is placed upon the table E'. At each rotation of the shaft C the eccentric C' will impart a reciprocating motion to the slide D and gage-table D', carrying the blank-table E' and pile of blanks *b* up and into contact with the gumming-bars F<sup>3</sup> F<sup>4</sup>. As the pile of blanks moves downward, the top blank will remain attached by the gum to the under side of the gumming-bars, from which it is withdrawn, in the manner common in envelope-machines, by means of a reciprocating carriage, (not shown in the drawings,) those portions of the envelope-blank requiring to be gummed having only been brought into contact with the gumming-bars. As the blanks are thus removed from the top of the pile of blanks, it is necessary to carry the pile of blanks up higher at each rotation of the eccentric C'. This is effected by giving an intermittent feeding motion to



the slide E and table E', causing the table E' to leave the table D', as shown in the drawings.

The slide D is provided with a hub *d*, Fig. 6, which extends through a slot G in the stationary stand A', and carries the shaft H, journaled in the hub *d*, and having a pinion *e* upon its inner end engaging the internal gear *f*, which turns upon a stud *g* held in the slide D. The gear *f* is provided upon its opposite side with a crank-pin *h* and roll *h'*, placed in the groove *j*, extending transversely across the slide E. Turning loosely upon the shaft B is the ratchet-wheel *k*, having upon each side a hub, upon which is pivoted upon one side of the ratchet-wheel the pawl-bar J and upon the opposite side of the ratchet the arm K. The pawl-bar J carries the pawl J' and a stud J<sup>2</sup> at its outer end, upon which a roll is placed, (not shown in the drawings,) and which enters a slot *m* in an arm M' on the stationary stand A'. To the arm K is pivoted a rod K', which extends upwardly, and at its upper end is provided with an arm K<sup>3</sup>, placed at right angles to the rod, resting upon the pile of blanks *b*. A pawl-shaped cam K<sup>4</sup> is attached rigidly to the arm K, and in such position relatively to the pawl J' that the cam K<sup>4</sup> will raise the pawl out of engagement with the ratchet-wheel *k* by means of the pin J<sup>5</sup> whenever the pile of blanks *b* are high enough to be brought into contact with the gumming-bars F<sup>3</sup> F<sup>4</sup>; but in case the pile of blanks *b* is not raised high enough to reach the bars F<sup>3</sup> F<sup>4</sup>, then the cam K<sup>4</sup> is lowered, so the pawl J' will engage the ratchet-wheel *k*, and as the slide D is moved up and down by the eccentric C' the pawl J' will impart an intermittent rotary motion to the ratchet-wheel *k* as the outer end of the pawl-lever J is held in the slot *m* of the fixed arm M'. The ratchet-wheel *k* is held from a reverse motion by means of the retaining-pawl J<sup>3</sup> on a stud J<sup>4</sup>, held in and carried by the sliding plate D, the stud sliding in the slot G' in the stationary stand A'. The outer hub of the ratchet-wheel is provided with clutch-teeth *n n*, Fig. 4, and upon the outer end of the shaft H is the hand-wheel N, having a spline-connection with the shaft, but held from coming off the shaft by a suitable collar *n'*, Fig. 1.

The side of the hub of the hand-wheel N is provided with clutch-teeth *n*<sup>2</sup>, adapted to engage the teeth *n n* upon the hub of the ratchet-wheel *k*. The hand-wheel has a sliding motion upon the shaft H, which allows the clutch-teeth to be disengaged and the shaft H to be turned by the operator independently of the ratchet-wheel *k*, or the hand-wheel and ratchet to be connected by means of their clutch-teeth and the intermittent rotary motion of the ratchet-wheel to be imparted to the shaft H, causing a rotation of the internal gear *f* and crank-roll *h'* in the slot *j*, raising the blank-table E' above the gage-table, as shown in Figs. 1 and 2 of

the drawings. As the crank-roll *h'* is raised past its highest point, the weight of the blank-table E' will cause the ratchet-wheel to be turned away from its pawls, allowing the blank-table to fall upon the gage-table in position to be again raised, as above described.

In order to break the force of the blow as the blank-table falls upon the gage-table, I place a series of spiral springs *p p*, Figs. 1 and 2, attached to the gage-table at one end, with their free ends extending upwardly to receive the blank-table in its fall.

The ratchet-wheel *k* is held from longitudinal movement upon the shaft H by means of the hub *d* on the sliding plate D and a collar *o*, attached to the shaft H and recessed in the hub of the ratchet-wheel *k*, as shown in Fig. 4.

Although my improved paper-feeding apparatus is herein shown and described as applicable to the purpose of feeding a pile of blanks to a stationary set of gumming-bars, it is equally adapted to be used in other machines in which the stationary gumming-bars are supplanted by other devices toward which it is desired to move the pile of blanks by an intermittent reciprocating motion.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a paper-feeding apparatus, the combination, with a vertical sliding plate having a reciprocating motion and means for operating said plate, of a blank-carrying table attached to a vertical sliding plate having an intermittent motion in and carried by said first-mentioned sliding plate and means for operating said blank-carrying table, substantially as set forth.

2. In a paper-feeding apparatus, the combination of a blank-holding table attached to a sliding plate, said sliding plate being provided with a transverse groove, a sliding plate carrying said grooved sliding plate and having a sliding motion in ways attached to the stationary part of the machine, and internal gear carried by the last-mentioned sliding plate and having a crank-pin entering the groove in said grooved plate, said internal gear-wheel having an intermittent motion through connected actuating mechanism, substantially as described, whereby said blank-holding table is given an intermittent sliding motion, as and for the purpose set forth.

3. In a paper-feeding apparatus, the combination, with the blank-holding table E' and slide E, provided with a transverse groove *j*, of the slide D and means for adjusting the blank-holding table, consisting of internal gear *f*, crank-pin *h'*, pinion *e*, shaft H, ratchet-wheel *k*, pawl-lever J, carrying-pawl J', arm K, carrying pawl-shaped cam K<sup>4</sup> and rod K', provided with arm K<sup>3</sup>, for the purpose stated, substantially as set forth.

4. The combination of stationary stand

A', having an arm M' and slot *m*, sliding plate D, actuating eccentric C', crank-gear *f*, carried on plate D, sliding plate E, having a transverse groove *j*, blank-table E',  
5 shaft H, carried by plate D, gear *e*, engaging the crank-gear, ratchet *k*, pawl-lever J, having a stud entering the slot *m*, pawl J', and retaining-pawl J<sup>3</sup>, substantially as described.

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