J. F. ELLIS.

Envelope-Cutting Machine.

No. 161,604. Patented April 6, 1875.

— FIG. III. —

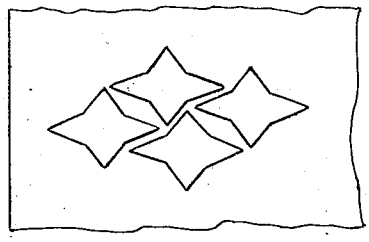
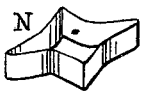
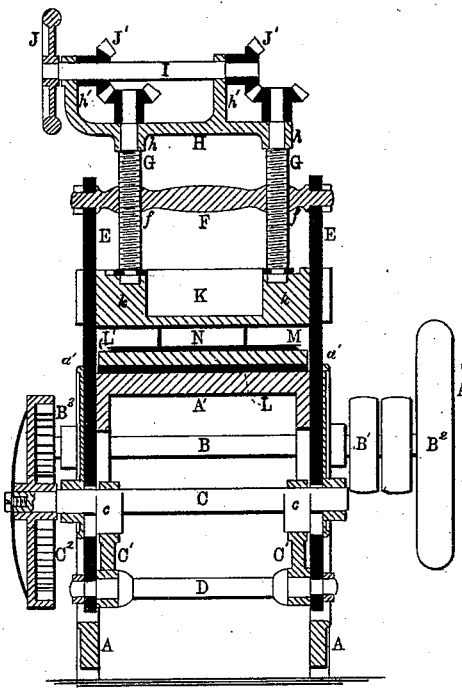


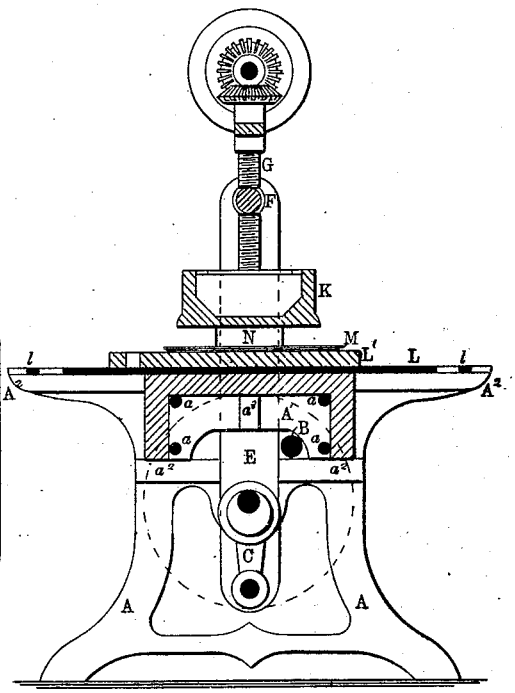
FIG. IV.



— FIG. I. —



— FIG. II. —



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UNITED STATES PATENT OFFICE.

JOHN F. ELLIS, OF TORONTO, CANADA.

IMPROVEMENT IN ENVELOPE-CUTTING MACHINES.

Specification forming part of Letters Patent No. **161,604**, dated April 6, 1875; application filed August 5, 1874.

To all whom it may concern:

Be it known that I, JOHN F. ELLIS, of the city of Toronto, Province of Ontario, Canada, have invented certain Improvements in Envelope-Cutting Machines, of which the following is a specification:

My invention relates to that class of machines used for cutting envelopes; and it consists in certain improvements, hereinafter set forth in my claim of invention, applied to such machines, the object of said improvements being to cut paper placed sheet above sheet on a table into figures of a regular and desired shape by means of a die, herein illustrated, and used with the said improvements forming my invention.

In the accompanying drawing, Figure 1 is a cross-section, and Fig. 2 a longitudinal section, of a machine embodying my improvements. Fig. 3 is a view showing the different positions the die N occupies on the paper M during the process of cutting, and Fig. 4 a perspective view of the die.

A is the frame of the machine, strongly constructed of iron or other suitable material, consisting of two sides connected by a central table, A^1, with flanged edges and central rib a^3, and stayed with lateral rods *a* at top and bottom. A^2 are horns cast on the top corners of each side, forming, by means of the projecting lip a^1, a recess or guide, within which the sliding table L travels. a^2 are steps, upon which the center table A^1 rests. B is the driving-shaft, passing through both sides of the frame, and revolving within suitable bearings cast thereon, and having attached at one end the driving-pulley B^1 and fly-wheel B^2, the other end having a pinion, B^3, affixed, which gears into the inside toothed wheel C^2, fastened to the shaft C, which revolves in bearings cast on the sides of the frame. On C are attached or forged two equal eccentrics, *c c*, placed at a suitable distance apart. C^1 is a combined eccentric sheaf and connecting-rod, connecting the shaft C, by means of the cross-bar D, with the standards E E, and imparting to them a reciprocating up-and-down motion, the distance traveled by the standards E being regulated by the throw of the eccentrics *c c*. The standards are slotted to allow the shaft C to pass through them without touching at either end of the stroke. The upper ends of the standards E are connected and stayed by a cross-bar, F, swelled out near the ends to form nuts *f*, in which fit the adjusting cross-head screws G. The points of the adjusting-screws *g* are reduced in diameter, forming pivots, which turn in the brackets *k*, cast on the cross-head K. They are kept in position by a collar above and washer and pin below. K is the adjustable cross-head, fashioned as shown, and adjusted to any suitable height by the screws G, worked from the wheel J′ by the bevel-gearing J J. H is an upper frame, fitting on the head of the screws G, which are turned down to a smaller diameter at this point, and revolve in the elongated sockets. *h h′* are uprights cast on the frame H, forming bearing-boxes, in which the shaft I revolves. These standards also serve the purpose of keeping the bevel-wheels in position. L is the sliding table, traveling in a groove sunk in the tops of side frames, and above the center table A^1, and on which is placed the cutting-board L′, made of wood or other suitable material. N is the movable die, which is placed in proper position by hand on the paper M after each cut, as shown in Fig. 3. The sliding table L is so adjusted in the sliding grooves that when shoved to the center of the machine its under side rests directly on the center table A^1.

It will be seen that the whole strain of cutting is thus thrown on the strongly-made and ribbed table A^1. L is also provided with handles *l*, for putting it to and fro.

The operation of the machine may be briefly described as follows: The paper is placed usually two hundred and fifty sheets thick at a time on the cutting-board L′, and the die N is carefully placed by hand on the top of the paper, care being taken to place the knife so that the smallest quantity of paper will be wasted. The machine being in operation and adjusted properly, the table L is shoved in as the cross-head rises until the knife is under the center of the cross-head K. The head, when it returns on the downstroke, forces the die clean through the paper, and on rising out of the way the sliding table is withdrawn, the

knife placed on a fresh location, and the above operation repeated until all the paper is cut up, and without stopping the machine.

The inside face of the die N is perpendicular, to allow the envelopes to rise easily within the die.

I claim as my invention—

In an envelope-machine, the reciprocating cross-head K, adjusting-screws G, cross-bar F, frame H *h'*, shaft I, bevel-gears J' J', and hand-wheel J, in combination with the vertically-reciprocating standards E, substantially as specified.

JOHN F. ELLIS.

Witnesses:
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