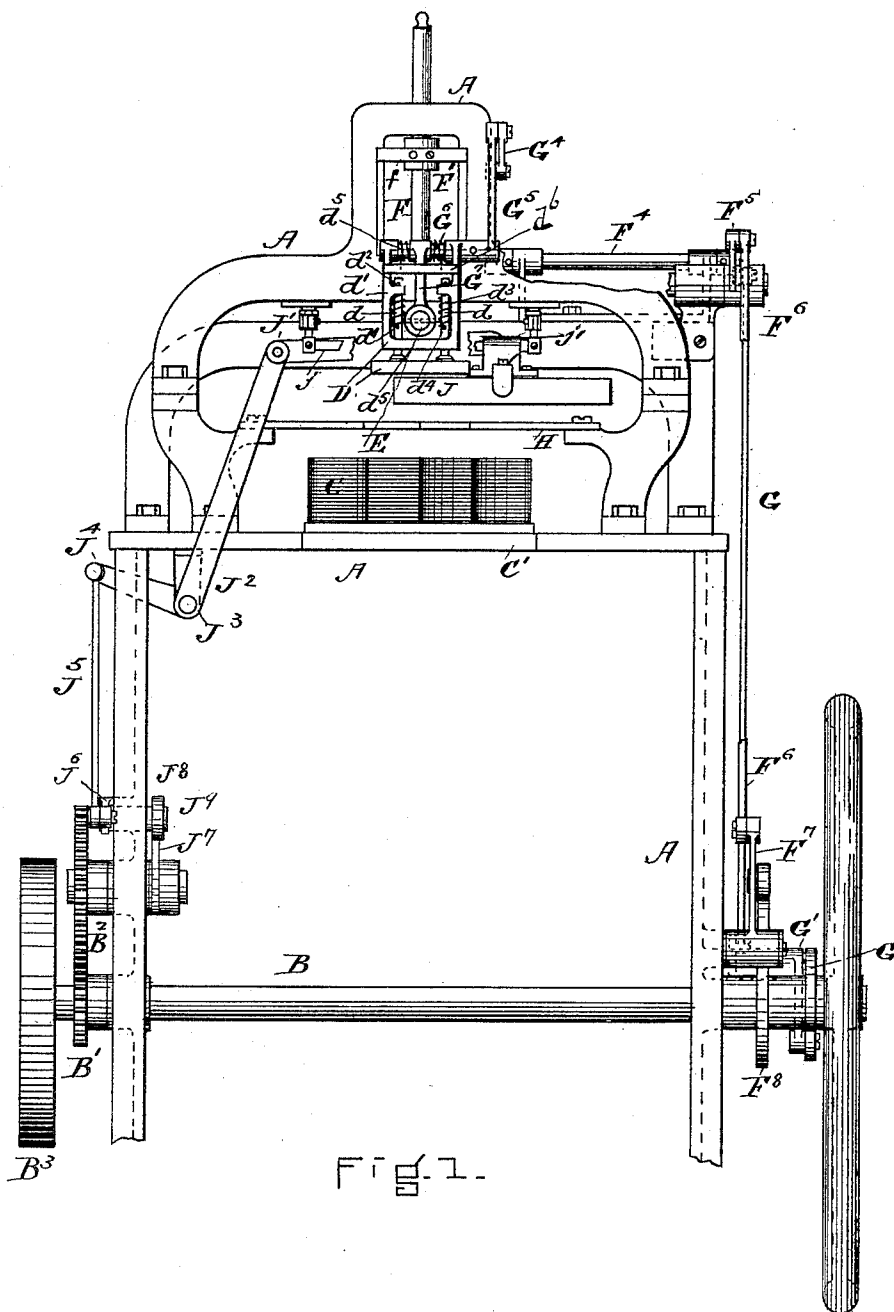


3 Sheets—Sheet 1.

No. 462,209.

Patented Oct. 27, 1891.



WITNESSES.

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(No Model.)

3 Sheets—Sheet 2.

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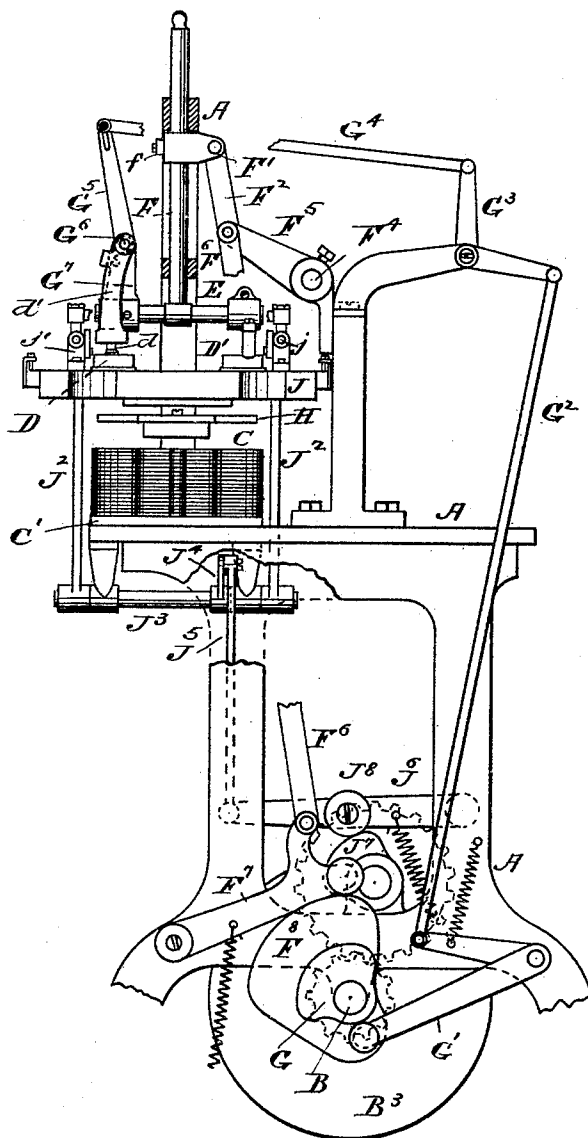


Fig. 2.

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3 Sheets—Sheet 3.

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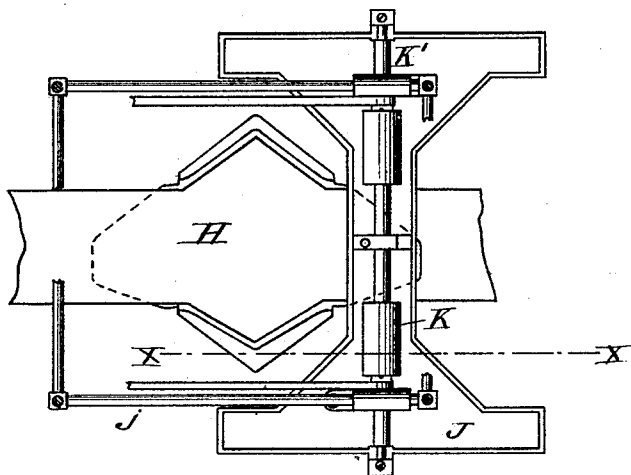


Fig. 3.

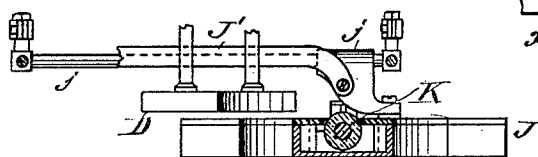


Fig. 4.

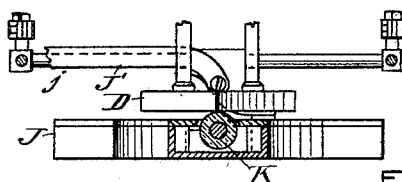


Fig. 5.

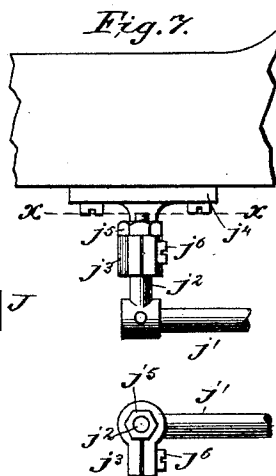


Fig. 7.

Fig. 8.

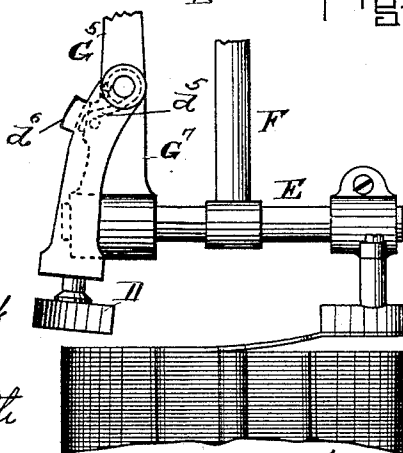


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOSEPH DENNIS, WILLIAM SHERRAN METCALFE, AND JOHN AMES SHERMAN,
OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO THE WHITCOMB EN-
VELOPE COMPANY, OF SAME PLACE.

GUMMING MECHANISM FOR ENVELOPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 462,209, dated October 27, 1891.

Application filed June 27, 1890. Serial No. 356,935. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH DENNIS, WILLIAM SHERRAN METCALFE, and JOHN AMES SHERMAN, all of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in the Gumming Mechanism of Envelope-Machines, of which the following is a specification.

Our improvement relates to mechanism for giving to one of the pickers a horizontal movement while it is in contact with the surface of the blank, as well as the ordinary vertical movement necessary to cause it to perform its function of being gummed and transmitting its gum to the blank.

In the drawings is shown at Figure 1 a front elevation of a mechanism embodying our invention arranged upon the frame of an envelope-machine, so much of the machine being shown as will give a clear understanding of our invention. Fig. 2 is a side view of the mechanism shown in Fig. 1, part in section on line *xx* of Fig. 1, the fly-wheel being removed. Fig. 3 is a detail showing the gum-box and the rods on which it travels in plan, the gum-box being uncovered. Fig. 4 is a section on line *xx* of Fig. 3, but showing the gum-box covered and in addition the position on one of the pickers. Fig. 5 is a like view showing the gum-box in the act of gumming the picker. Fig. 6 shows the method of lifting the blank, one of the pickers having been slid off from the gummed surface of the paper. Figs. 7 and 8 show details enlarged and are referred to below, Fig. 8 being a section on line *xx* of Fig. 7.

A is the frame of the machine, in which is mounted a shaft B, carrying the pulley B³, by means of which motion is given to the various parts.

C is a pile of blanks in position to be gummed by the picker or pickers in the ordinary manner, being mounted upon a table C', which may be fed to the gumming mechanism, if desired, in a way well known to all envelope-machine makers, and therefore not shown in drawings.

We will describe our invention applied to a machine of the kind in which the pickers, having received their supply of gum, descend and eventually rise, lifting the blank a suffi-

cient distance from the pile below it to allow the interposition of a carrier or carriage upon which the gummed blank is deposited to be conveyed and submitted to the various processes in the course of manufacture.

We have not shown a carriage in the drawings, because its construction and operation are well known to all skilled in the art. We have shown two pickers—one D mounted in such a way as to embody our invention and arranged to gum the fly-flap of the envelope, the other D' of ordinary construction and mounted to strike the blank and raise it in the manner above referred to, being assisted in this operation, if thought desirable, by the picker D. Both these pickers are hung from a bar E, which cross-bar is mounted on the lower end of a vertically-reciprocating bar F. This bar F is mounted in a cross-head *f*, sliding in ways in the upper part of the frame A of the machine, the upper part of the rod F also passing through the frame. This bar F is reciprocated by means of a clamp F', attached thereto, a connecting-rod F², pivoted to the clamp, rocker-arm (not shown) connected to said rod F and mounted on rock-shaft F⁴, a second rocker-arm F⁵, similar in all respects to the one connecting the rock-shaft F⁴ with the connecting-rod F², connecting-rod F⁶, lever F⁷, and cam F⁸. This motion of the rod F gives a vertically-reciprocating movement to both pickers at once. The pickers are shaped at their bottoms according to the shape of the daub of gum which it is intended shall be deposited upon the blank.

It is customary to use a comparatively narrow daub of gum with which to gum the permanently-sealed flap of the envelope, whereas the fly-flap, which is to be stuck by the user of the envelope, is ordinarily given a wider daub of gum. It is desirable, however, where this is done, that it shall take no more force to pull the blank off of one picker than off of the other, and consequently it is desirable that the fly-flap picker shall be moved side-wise part way off the blank before the blank is lifted, so that the blank when it is lifted shall be held by two pickers, each of which has a gummed surface of substantially the same width in contact with the blank. One method of accomplishing this result is shown in the drawings. We mount our picker D in a frame

d' , preferably by means of two rods d , which pass up through the frame d' and are held in place by pins or nuts d^2 , yielding springs d^3 , and pins d^4 , so that the picker may yield slightly to any unevenness in the pile of blanks. This frame d' is hung from the rock-shaft G^6 , journaled on the upper end of the post G^7 , mounted on the cross-bar E . The picker is given its rocking movement from the cam G through the bent lever G' , connecting-rod G^2 , bell-crank G^3 , connecting-rod G^4 , rocker-arm G^5 , and rock-shaft G^6 . By adjusting the connection of G^4 and G^5 the length of the rocking motion of the picker may be adjusted. This may be done by slotting one end of G^5 , as shown, and using a set-screw at the junction G^4 and G^5 , and also at the junction of the two arms of G^3 , so that the angle of these arms may be regulated at will.

The operation of this part of our invention is as follows: The pickers, having been gummed, descend in such manner as to strike upon the portions of the blank which are to receive the gum. Immediately thereafter the cam G operates to rock the picker D off or partly off from the edge of the blank, as desired, (see Fig. 6,) so as to either leave that end of the blank free or to leave it but slightly stuck to the picker. The rod F , being now raised, lifts both pickers at once, and with them the top blank, sufficiently high to allow the carriage to pass under the blank, the carriage moving between the top of the pile of blanks and the under side of the draw-off H . When the carriage is in position to receive the blank, the pickers are lifted still farther—say to the position in Fig. 1—and the draw-off draws the blank off from the pickers as they rise and allows it to fall onto the carriage, after which the carriage retires and the operations are repeated. This feature is common to various well-known machines. After the blank has been pulled off the pickers the cam G causes the picker D to resume its former position in time to be gummed by the gum-box. It is essential that the picker have an oscillating movement, so as to raise the corner of the blank slightly as it slides off from it, and the above seems the simplest way to give that movement to it.

For the purpose of gumming the pickers we have provided a gum-box J , which swings or is caused to travel from one side of the machine to the other between each stroke of the pickers in such manner as to gum them. We prefer to mount our gum-box on two rods j , which extend from one side of the machine to the other, and are hung from the top bow of the frame A by means of hangers j^2 , each of which passes up through a clamp j^3 , attached to a bracket j^4 , fastened to the bow of the frame, and is held in place by a nut j^5 , which screws onto its end, and also by the clamp itself, which is tightened by the screw j^6 . The gum-box is mounted on slides or sleeves j' , which run on the rods j , and by turning the nuts j^5 the hangers are shortened

or lengthened, so as to raise or lower the rods j . (See Figs. 7 and 8.) Motion is imparted to this gum-box by means of the connecting-rod J' , rocker-arms J^2 , rock-shaft J^3 , rocker-arm J^4 , connecting-rod J^5 , lever J^6 , and cam J^7 , which acts upon roll J^8 , mounted on a stud J^9 on lever J^6 , the cam being timed to throw the box, as described, being operated from the shaft B by gears $B' B^2$. The box itself is shaped, preferably, as shown in Fig. 3, so as to contain sufficient gum for all practical purposes and yet remain out of the way of the pickers during their operation at all times during their descent. The box is covered, except where it is provided with rolls K , mounted upon a suitable shaft K' , which rolls extend up through the cover, so as to touch the bottoms of the pickers and be rotated by contact therewith as the box travels, this being a convenient way of rotating the gum-roll. This gum-box in practice, traveling back and forth under the pickers between each descent of the pickers, enables the pickers to be gummed with least possible waste of time. For this reason we prefer to use it with these pickers, though other means for gumming them may be adopted. After it has moved the pickers descend, the daubing-picker moves horizontally, the pickers rise again, the carriage travels under the blank, the pickers continue their upward movement, the daubing-picker moving at the same time back to its normal place, and then the gum-box travels back, gumming the pickers again. As shown in the drawings, a spring d^5 presses the rocking picker in toward the bar F until the cross-bar d^6 , acting as a stop, strikes the post G^7 . By this means the bottom of the picker is kept normally horizontal.

What we claim as our invention is—

1. In an envelope-machine, in combination, the picker D , above described, mounted upon a vertically-reciprocating rock-shaft, and mechanism, substantially as described, whereby said rock-shaft is reciprocated vertically and is also oscillated in the manner described while at its lowest position, all as and for the purposes set forth.

2. The picker D , attached to a rocker-arm mounted, as described, upon the rock-shaft G^6 , a vertically-reciprocating picker-carrier carrying a second picker and said rock-shaft, and mechanism, substantially as described, whereby said picker-carrier is reciprocated vertically, in combination with means, substantially as described, whereby said rock-shaft is oscillated, as set forth.

In testimony whereof we have hereunto subscribed our names this 12th day of June, A. D. 1890.

JOSEPH DENNIS.
WILLIAM SHERRAN METCALFE.
JOHN AMES SHERMAN.

Witnesses:

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