(No Model.) 2 Sheets—Sheet 1.

A. D. TYRREL.

ENVELOPE MACHINE.

No. 436,618. Patented Sept. 16, 1890.

Fig. 4.

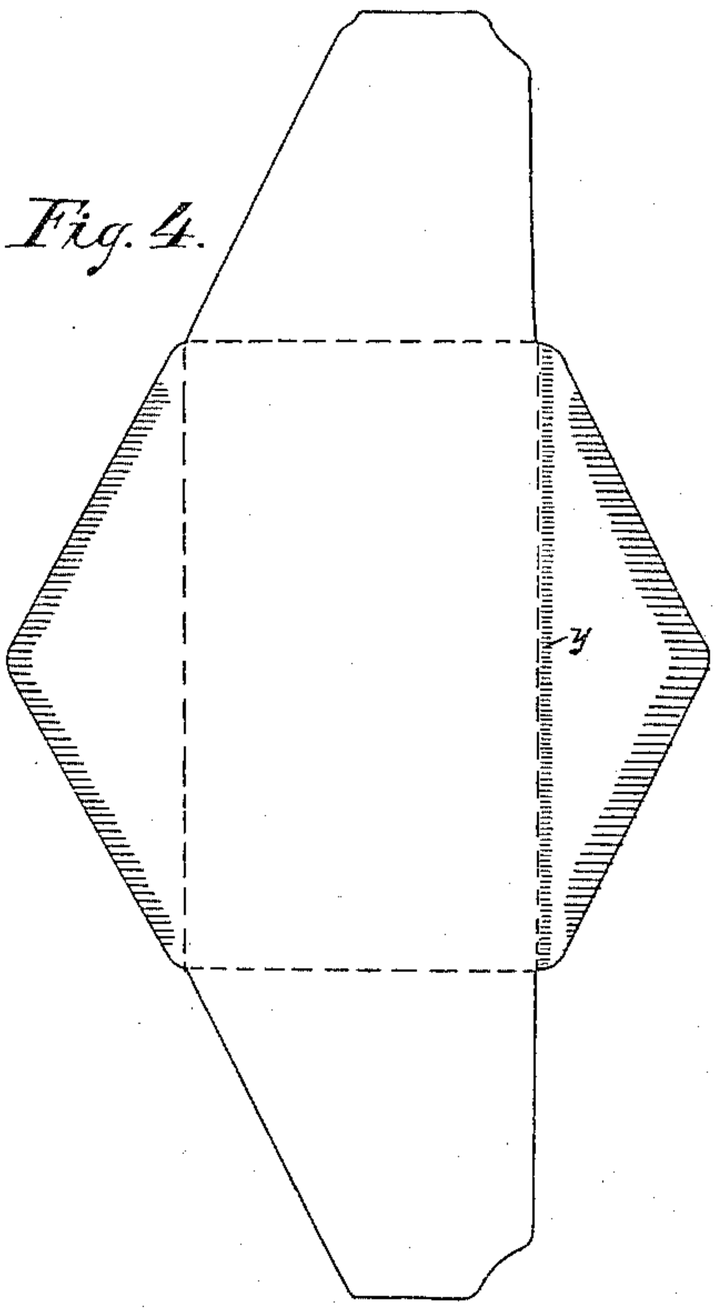


Fig. 6.

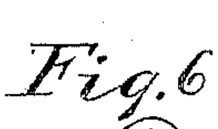
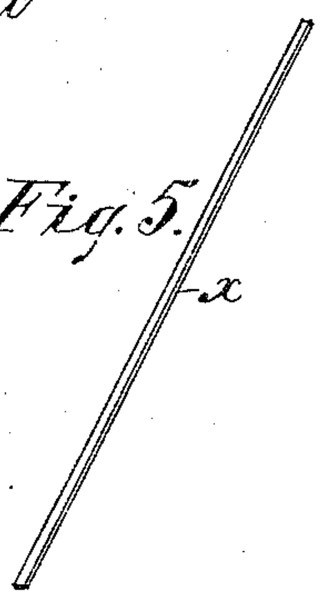


Fig. 5.



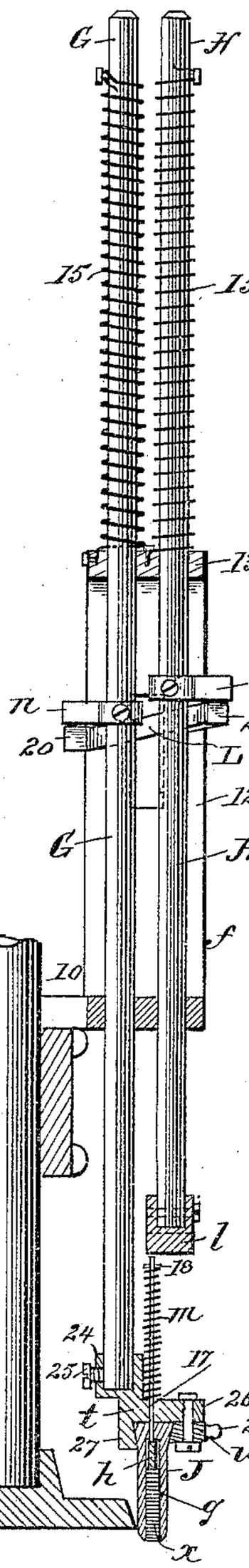
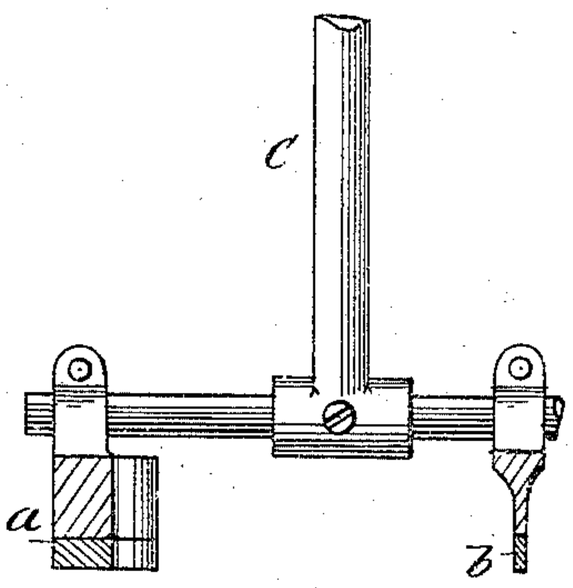
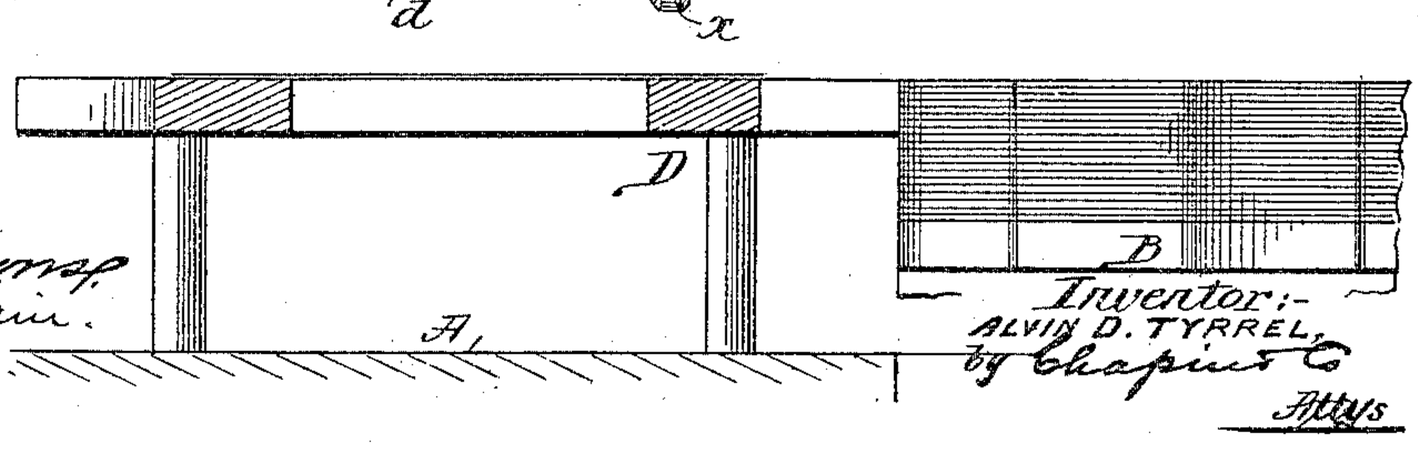


Fig. 1.





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(No Model.) 2 Sheets—Sheet 2.

A. D. TYRREL.

ENVELOPE MACHINE.

No. 436,618. Patented Sept. 16, 1890.

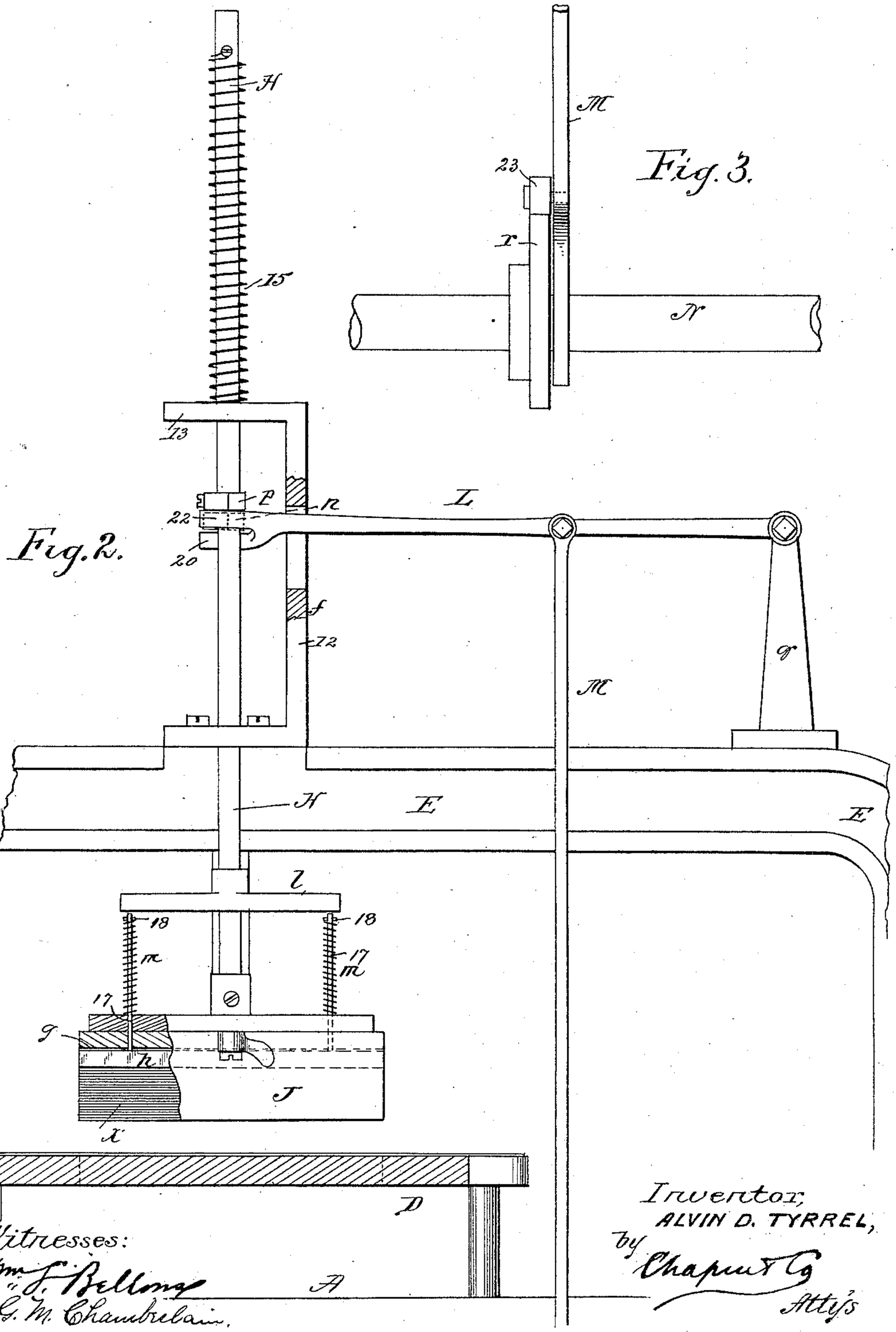

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

ALVIN D. TYRREL, OF SOUTH HADLEY FALLS, ASSIGNOR OF ONE-HALF TO EDWARD J. BROWN, OF SPRINGFIELD, MASSACHUSETTS.

ENVELOPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 436,618, dated September 16, 1890.

Application filed November 22, 1889. Serial No. 331,201. (No model.)

To all whom it may concern:

Be it known that I, ALVIN D. TYRREL, a citizen of the United States, residing at South Hadley Falls, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Envelope-Machines, of which the following is a specification.

This invention for improvement in envelope-machines particularly appertains to mechanism for affixing to the inner face of the seal-flap at or near and along the line of fold for said flap and at the junction thereof with the part of the blank forming the front of the envelope a strip of tape or cord. This strip of narrow tape or cord projects slightly beyond the sealing-flap at its one end, the purpose thereof being to afford means for conveniently opening the envelope after the same has been sealed by drawing on the said protruding end of the tape in a direction transversely of the line of fold of the seal-flap, the said tape constituting a severing device for that envelope to which it is attached as a part thereof.

The invention consists in the construction and combination of parts, all substantially as will hereinafter more fully appear, and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which this improved tape-affixing mechanism is illustrated as forming a part of an envelope-machine of any ordinary or approved construction, the machine shown and described in Letters Patent of the United States granted to me July 30, 1889, No. 408,200, being one to which this improved mechanism may be advantageously applied.

Figure 1 is a sectional elevation of parts of the envelope-machine sufficient to show the proper connection therewith of the mechanism of this invention, the sectional view of such portion of the machine being taken from front to rear, and the said improved mechanism is also shown in side elevation, some parts thereof being broken away for clearer illustration. Fig. 2 is an elevation of the parts shown in Fig. 1 as seen to the rearward of the gummers. Fig. 3 is a front view of a portion of the driving-shaft, showing the cam thereon and the thrust-rod operated by said cam, the upper portion of which thrust-rod and its connection with the part operated thereby being seen in said Fig. 2. Fig. 4 is a plan view of the inner face of an envelope-blank, the same being indicated by line-shading as gummed as ordinarily, and also as gummed in an additional line along the seal-flap fold for the retention of the said severing-tape. Fig. 5 is a view of a length of tape such as is supplied to the gummed envelope by the mechanism of this invention. Fig. 6 is a plan view of a confining-cam, to be hereinafter referred to.

In the drawings, the line A represents the level of the top of the table, B the blank supporting and elevating table, and indicated at C is the vertically-reciprocating picker-carrying shaft, supported on the lower end of which are the usual front and rear flap gummer-pickers, the latter being shown at *a;* but the support for the former is shown as broken off, as illustration of this usual part of the machine is deemed unessential. There is also secured on the lower end of the said picker-shaft a narrow gummer *b* so disposed as to extend over the blanks from end to end thereof at a portion at or near and along the folding-line for the said blank. The picker-gummers are to receive their reciprocatory motions in any of the ways well known in envelope-machines.

D represents the frame, in which is the folding-box, and above same is the usual rear arched standard E, in bearings of which vertically plays the shaft F for the folder-plunger *d*, the movements of which are to be insured and controlled in the usual manner. There is located and secured on said arch just forward of the folder-plunger shaft a stand *f*, consisting of an angular foot-piece 10, the upright 12, and the angular head-piece 13, and playing through vertical bearings in said head and foot pieces are two vertical spindles or rods G and H, each of which has a spring 15 applied thereto, the tendency of which is to force said rods G H downwardly. On the lower end of the one G of said rods is affixed a tape-holder, which consists of a flat deep block J, ranged parallel with and in proximity to the forward edge of the fold-

ing-box, having a vertical kerf or deep channel *g* therein within its thickness, which is preferably open from end to end of said tape-holder block. Within said channel and normally at the upper portion thereof is a longitudinally-extending bar *h*, fitted to freely move toward the mouth of the said channel, and, as here particularly shown, said bar is formed as one with a couple of spindles 17 17, which extend angularly and vertically upwardly from the bar and bear by their upper ends against the under side of a foot-piece *l*, secured on the lower end of the other H of said rods, said lower end of this rod being normally maintained somewhat higher than that of the one G.

A spiral spring *m* is applied between the upper side of the tape-holder block J and a cross pin or shoulder 18 near the upper end of each spindle 17, the reaction of which springs tends to maintain said bar in its highest position within the holder-block.

Dogs or abutment lugs *n* and *p* are provided on the vertically-reciprocating rods G and H, respectively, and a swinging lever L is by its one end pivotally supported on a stand *q* on the arch, its other end being bifurcated, the one leg 20 lying alongside of the rod G and under the dog *n* thereof, while the other leg 22 lies alongside of the other rod H under its dog *p*, and a regular reciprocatory or swinging movement is imparted to said lever by the connection with an intermediate portion thereof of the thrust-rod M, which by its other end is forked to straddle the main or driving shaft N, and is provided with a friction-roller 23, on which the periphery of a cam *r* on the main shaft bears. (See Fig. 3.)

The holder-block J is removably secured on the end of the rod G, and, as shown, the means for so securing said holder-block thereon consists as follows: A transverse bar *t* is, by its socketed extension 24 and the set-screw 25, secured on the lower end of the rod G. Said bar *t* is of an angular or L-shaped cross-section, whereby the horizontal ledge 26 and pending vertical rib 27 are formed. The forward face of this rib is inclined, and the upper portion of the holder-block J is of dove-tailed form, as seen in Fig. 1. An eccentric or cam is pivoted on the under side of the horizontal ledge 26, said cam having a lever-arm 28, by which it may be turned on its pivot. The inner edge of this cam *u* is inclined in a downward and rearward direction, so that when the block J is in place, as shown in said Fig. 1, and the cam turned to bear on the front face of the block the block will be held against any outward or downward movement, and by the length of bearing between the top edge and rear side of the holder-block and the said bar *t* there will be no tendency to swinging movement by the holder-block J on the bar *t* supporting same.

In the use of the mechanism above described for the purpose set forth the holder-block J, having its channel *g* filled with a series of the tapes or cords *x* and secured, as described, on the lower end of the reciprocating rod G, the blanks are gummed in the usual manner, the gummer *b* supplying the line of adhesive, as indicated by *y*, Fig. 4, on the blank, and are then carried, as usual, one by one to their usual position over the folder-box, the said gummed line on each blank lying along under the said channel *g* in the holder-block. Under the properly-timed rotation of the driving-shaft the thrust-rod M is permitted to descend, and with it swings downwardly the lever L. The rods G and H fall, under the action of their springs 15, when permitted so to do by the movement of the lever L, until the lower end of the holder-block J, carried on the rod G, comes to a bearing upon the blank along and about the gummed line *y* thereon. The lever L has a still farther downward throw, the leg 20 thereof passing below the dog *n*, and the leg 22 passes downwardly, so as to permit the rod H, under the action of its spring, to have a downward motion independently of the rod G, and at this time the bar *h* will force downwardly on the tapes in the channel *g* and crowd the outermost one firmly upon the gummed line *y* of the blank thereunder. On the return swing of the lever L the rod H is first lifted against its spring, and the foot-piece *l* thereon is carried upwardly away from the contact with the upper end of the spindles 17; but said spindles, through the action of the springs *m* thereon, upwardly follow the foot-piece until the bar *h* is in its uppermost disposition within the channel *g*. The forked end of the lever L, continuing upwardly, next forces, by its leg 20 abutting against the dog *n*, the rod G upwardly, lifting the holder-block J clear and away from the contact with the blank supported on the folder-box frame, and under the shaping and timing of the cam *r* the said parts are held upwardly during the time in which the blank, having received a tape, is folded into an envelope and delivered to the chain, and a new blank is gummed and fed forward over the folder-box.

What I claim as my invention is—

1. In an envelope-machine, the combination, with a support for a pile of envelope-blanks and a reciprocating gummer, as the one *b*, and another support for envelope-blanks, as the folder-frame D, onto which the envelope-blanks may be successively conveyed and temporarily supported, of a block or holder provided with a tape-containing channel having its mouth or opening at the lower edge of said block, and a bar to lie behind or inside of the tapes in said channel and movable toward and from the mouth of said channel, means for forcing said holder downwardly, and means for forcing said bar downwardly, and appliances for periodically sustaining said holder and said bar in their upper positions, for the purpose set forth.

2. In an envelope-machine, the combination, with the picker-shaft, of a gummer

thereon having a length about equal to that of the envelope-face and adapted to gum the blank in a narrow line along the fold for the seal-flap upon the front of the envelope.

3. In an envelope-machine, the combination, with the folder-box frame, of the rods G H and suitable guiding-supports therefor, whereby they may be vertically reciprocated therein, and the springs 15, applied on said rods to force them downwardly, and the abutment-dogs *n p*, the holder-block J, having the channel *g*, secured on the lower end of the rod G, the bar *h*, lying within said channel and having the upwardly-extended spindles 17, and the springs *m*, whereby said bar *h* is normally maintained in its uppermost disposition, the foot-piece *l*, secured on the lower end of the rod H, the swinging lever L, having the legs 20 and 22, adapted to engage said dogs *n p*, and means for imparting a reciprocatory movement to said lever, substantially as and for the purpose set forth.

4. In an envelope-machine, the combination, with the reciprocatory rod G, provided with the transverse bar *t* of L shape in cross-section, whereby the horizontal ledge and pending rib are constituted, and the cam *u*, pivoted on said horizontal ledge, of the holder-block J, having the channel therein, and the bar *h* within said channel and provided with the spindles 17, extended through the horizontal ledge portion of said transverse bar, and the springs *m*, applied upon said spindles, substantially as described.

5. In an envelope-machine, the combination, with the reciprocatory rod G, provided with the transverse L-shaped bar *t*, comprising the horizontal ledge and pending rib, the forward edge of the latter being inclined, as shown, and the cam *u*, pivoted on said horizontal ledge, having its rear edge also inclined, of the holder-block J, having the channel therein and having its upper portion of dovetail form and provided with the movable bar *h*, and springs supported on said bar and movable in said channel, substantially as and for the purpose set forth.

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