J. M. D. Keating.

Envelope Mach.

No. 39,053. Patented Jun. 30, 1863.

Fig: 2.

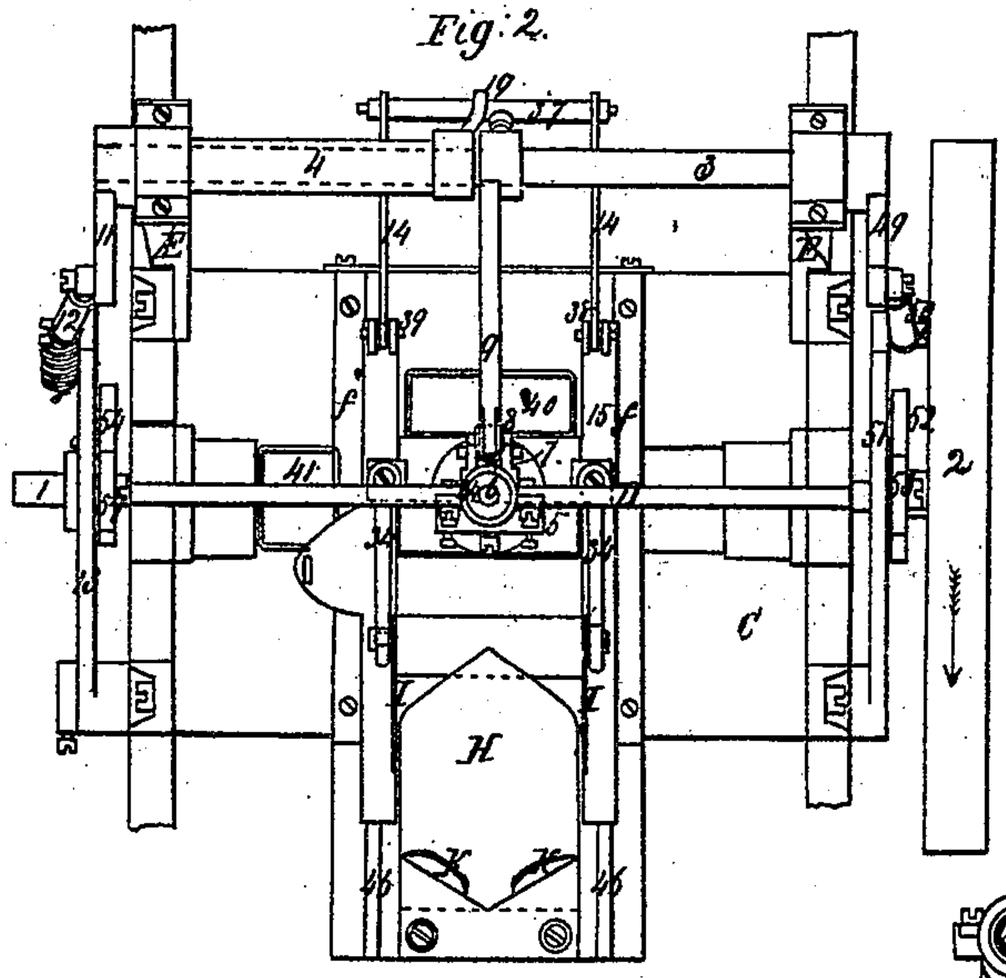


Fig: 1.

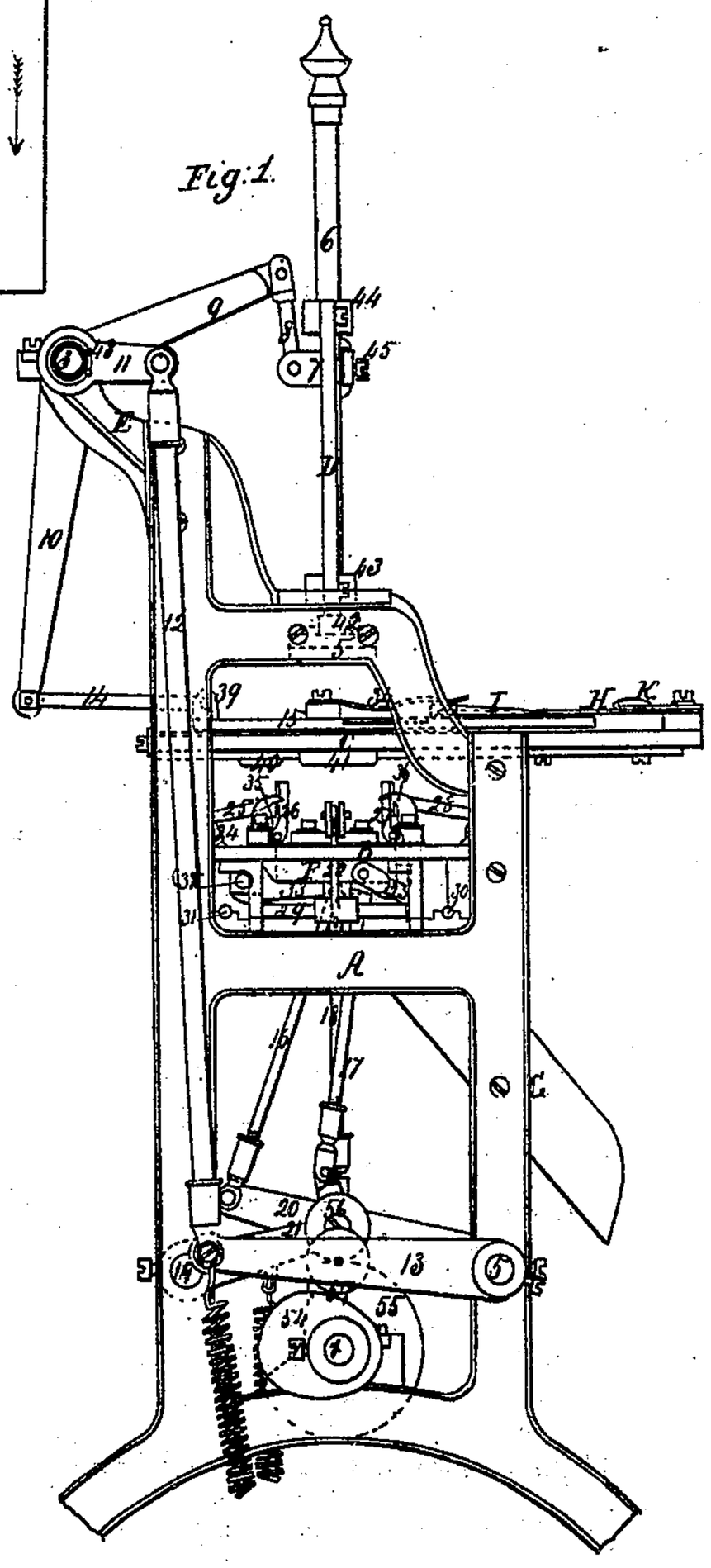


Fig: 3.

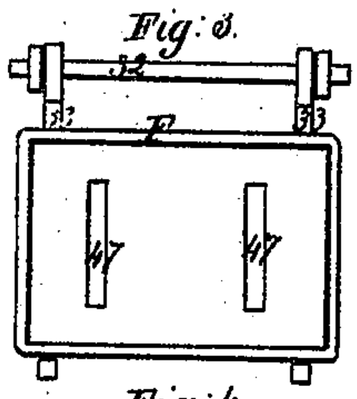


Fig: 4.

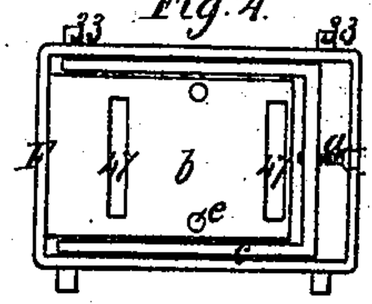
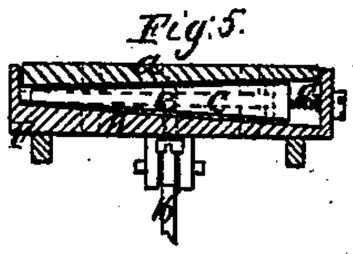


Fig: 5.



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JOHN M. D. KEATING, OF NEW YORK, N. Y.

ENVELOPE-MACHINE.

Specification forming part of Letters Patent No. **39,053,** dated June 30, 1863.

To all whom it may concern:

Be it known that I, JOHN M. D. KEATING, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Making Envelopes; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, figures, and letters of reference thereon, making part of this specification.

Of the said drawings, Figure 1 represents a side elevation, Fig. 2 is a top view, and Figs. 3, 4, and 5 are detail drawings, of the adjustable bed.

Similar letters and figures of reference indicate like parts in all the drawings.

The first part of my invention consists in making the bed for the face of the envelope adjustable in combination with a folding mechanism, so that the envelope may be folded loose or tight, and also readily adjusted to varying thicknesses of paper.

The second part of my invention consists in combining with a folding apparatus devices for holding and presenting the blanks so as to insure a perfect delivery to the plunger and folding apparatus.

The third part of my invention consists in the employment, in combination with a movable form for the blanks and folding apparatus, of a sleeve-shaft to work the form.

To enable others skilled in the art to make and use my invention, I will describe the construction and operation thereof.

A, Fig. 1, represents one side of the frame of the machine, (the legs being broken off at the bottom,) which frame is secured together by rods and screws at the bottom, and the plates B and C supporting the machinery and the arch D. Attached to the frame are brackets E, which support a shaft, 3, and sleeve-shaft 4, in proper journal-boxes. The main shaft 1 is secured in proper boxes on the frame A, and has a balance-wheel, 2. On this shaft are seven cams, four of which, with their connections, work the folding flaps, while another in the center of the shaft works the bed F for the face of the envelopes. These five cams are inside of the frame, and are so shaped as to bear a proper relation to all the working parts of the machine. There are small rollers pivoted to levers, which rollers rest upon the periphery of the cams, and are kept in contact therewith by springs arranged from the bed or base of the machine to draw the levers down upon the cams. On the side next the wheel there is a cam, 52, which, by means of the roller 53 on the lever 51, connecting-rod 50, and arms 49 and 9 on the shaft 3, works the plunger 5. On the other side of the machine, on the shaft 1, there is a cam, 54, which has a roller, 57, on the lever 13, resting upon its periphery, which, by the connecting-rod 12 and arms 10 and 11, secured to the sleeve shaft 4 by pins 48 and rod 14, reciprocates the form 15. These cams, levers, rollers, and springs being common to all machines, and forming no part of my invention, I omit a detailed description of their peculiar shape. The plate B is cast with proper slots for the working of the arms on the counter-shafts 29, 30, and 31, (the fourth not being seen,) and by their connecting-rods 22, 25, and 28 work the folding flaps 26 and 27, which are the side or broad flaps. The two end flaps, being down in Fig. 1, are not seen. These folding flaps are all properly hinged to blocks secured to the bed B by screws, as plainly shown in Fig. 1. The bed C is cast with mortises for the paste-dishes 40 and 41 and plunger 5, and has grooves cut therein for the V-ways 46 of the form 15. This form has also side grooves, in which are inserted plates *f f*, Fig. 2, to insure perfect travel of the form 15.

The bottom or bed F, upon which the face of the envelope rests during the folding operation, is cast hollow, and is hinged, by the ears 33, at 32, and is made adjustable, as shown in the detail drawings 3, 4, and 5, where the bottom part is represented by *b*, the top by *a*, and the adjusting-wedge by *c*. The screw *d* has a groove cut close to the head, which fits a slot cut in the end of the bed F, while the screw runs in the wedge-shaped fork or piece *c*. This wedge consists of a narrow fork, which fits the shell of the bed F, and the upper plate, *a*, with its beveled edge, rests upon it, as seen in the sectional drawing, Fig. 5. The bottom F is beveled, and by turning the screw (which is held stationary by the groove and slot) in one direction the wedge is carried forward and the plate *a* raised, and by reversing the operation of the screw the wedge is retracted and the plate *a* depressed. The screws *e e* must be loosened during the operation of adjusting sufficiently to allow the plate

a to be raised, and when the bed is properly adjusted they are tightened up. In this bed F there are slots 47 for springs to throw off the envelopes, when desired, into the spout G.

The operation of the machine will be as follows: The blanks, previously cut, are placed upon the stationary plate H, (which extends forward far enough to cover the aperture in the moving form 15, thereby preventing displacement or injury to the blanks during the travel of the form,) and against the wings K K, as shown in Fig. 2. Motion being given to the main shaft in the direction of the arrow, the cam 54 operates the lever 13, rod 12, arm 11, sleeve-shaft 4, arm 10, attached to shaft 37, and rods 14, which are jointed at 38 and 39 to the form 15, and carries the form forward. The inclined pieces I I raise the blank, and the springs 34 grasp and carry it, with the form, under the plunger 5. The bed F for the face of the envelope is hinged, by the ears 33 and pin 32, to ears on the bed B, (having been previously adjusted for loose or tight folds, thick or thin paper,) is now raised by a cam on the main shaft operating the lever 20, and rod 16, which is jointed to the bed F, as shown in Figs. 1 and 5, and the plunger 5, (the spindle 6 having its bearings at 43 and 44 in the arch D, and held in proper position by the cross-head 45,) operated by the cam 52, lever 51, connecting-rod 50, arms 49 and 9 on the shaft 3, and rods 8, jointed to the cross-head 7, now descends by its gravity and the aid of a spring arranged to keep the roller 53 to the periphery of the cam, and folds the flaps at right angles with the face of the envelope. The plunger is now raised by the elevation of the lever 51 (and its intermediate connection with the plunger) upon the cams 52 to its highest point, where it remains at rest during about two-thirds of a revolution of the main shaft. As soon as the plunger has ascended sufficiently high the end flaps, (shown as down in Fig. 1,) worked by cams on the main shaft and levers, (only one, 21, hinged at 19, and having a roller, 56, and operated by a cam, 55, being seen, the rest being the same and directly back of this,) and connecting-rods 17 and 18, (the other two being in the same line are not seen,) and the arms 23 and 24 on the counter-shafts 29, 30, and 31, (the fourth not seen,) and their rods 22, 25, and 28, close the flaps and finish the envelope perfectly. The cams working the counter-shafts, which impart motion to the flaps, now raise the levers, and through the connection open all the flaps, while at the same time the bed F swings down and the envelope is discharged into the spout G and carried into a receptacle. The side or broad flaps 26 and 27 are slotted, and there are small hooks 35 and 36, Fig. 1, the purpose of which is to prevent the envelope being drawn up by the plunger.

The pasting devices are well known to all familiar with envelope machinery, and I have not attached them to the machine herewith presented.

The connecting-rods from the cam-levers all have screw-connections for the more perfect adjustment of the mechanism.

The cam-levers all swing upon the shafts 5 and 19, and are kept in position upon the shaft by collars and set-screws.

The advantage of placing the counter-shafts below the bed is to leave the upper part free and unobstructed for the operators to feed the blanks rapidly, and thereby permit the faster operation of the machine.

Having thus fully described my improvements, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The adjustable bed, in combination with the folding mechanism, substantially as described, whereby the machine can be readily adjusted to fold the envelope loose or tight, and for varying thicknesses of paper, substantially as described and set forth.

2. In combination with the folding mechanism, the plate H, covering the aperture in the form, thereby preventing the blanks from catching or displacement as they are seized and carried under the plunger, substantially as described and set forth.

3. In combination with a movable form for carrying the blanks and a folding mechanism, substantially as described, the sleeve-shaft 4 to work the form, substantially as described.

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