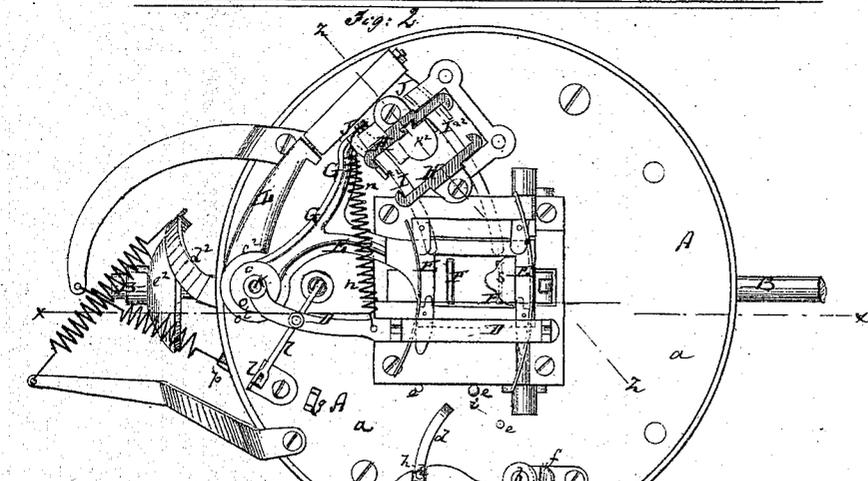
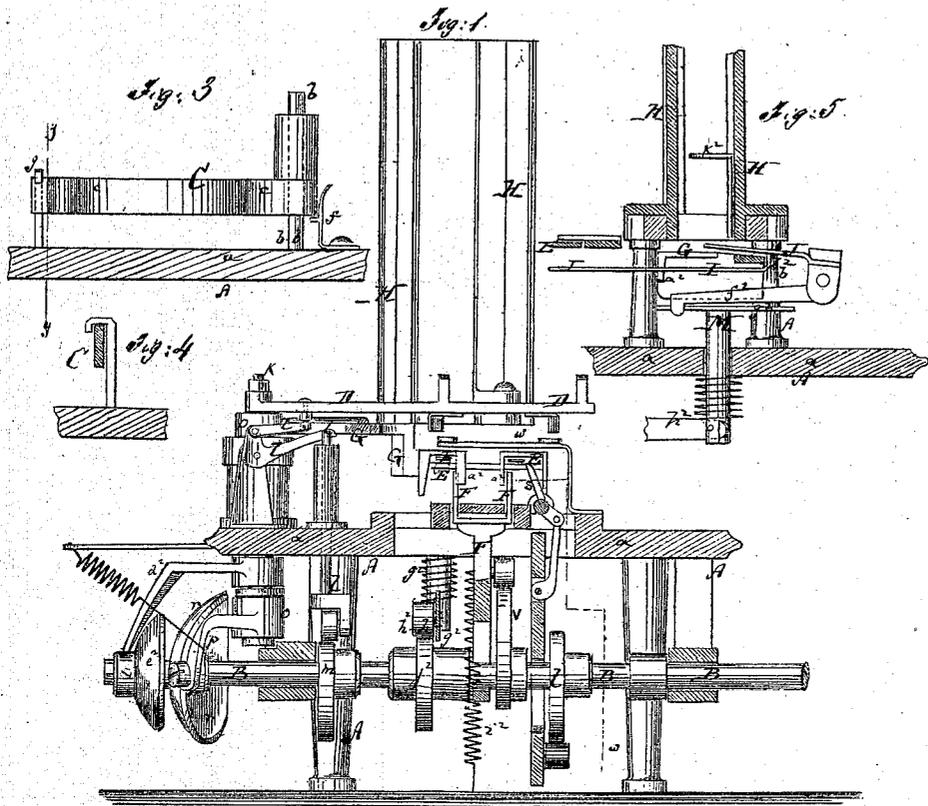


H. D. SWIFT & D. W. SWIFT.

Improvement in Envelope-Machines.

No. 115,382.

Patented May 30, 1871.



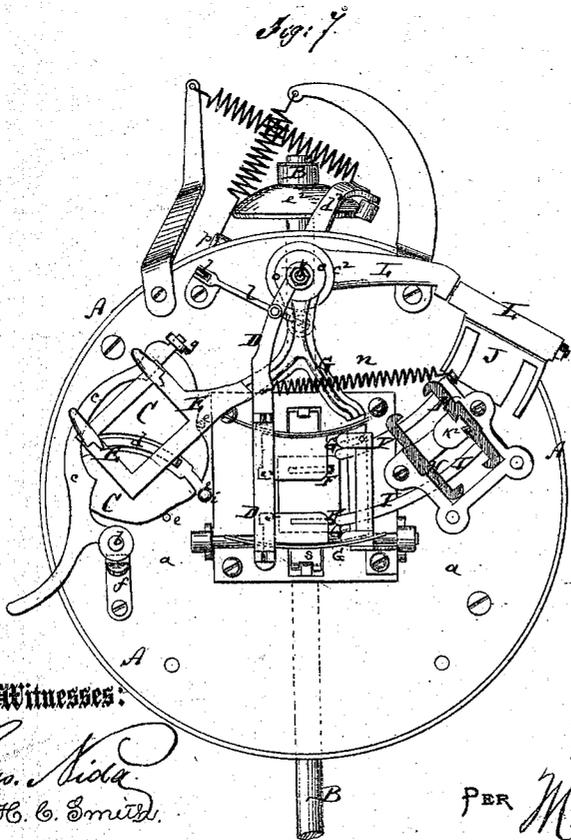
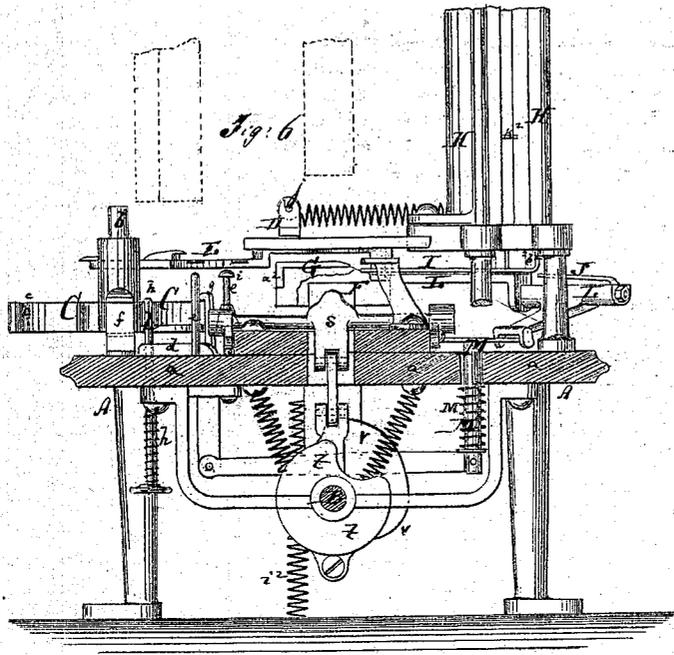
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UNITED STATES PATENT OFFICE.

HENRY D. SWIFT AND DANIEL WHEELER SWIFT, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO THEMSELVES AND G. HENRY WHITCOMB & CO., OF SAME PLACE.

IMPROVEMENT IN ENVELOPE-MACHINES.

Specification forming part of Letters Patent No. 115,382, dated May 30, 1871.

To all whom it may concern:

Be it known that we, HENRY D. SWIFT and DANIEL WHEELER SWIFT, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and Improved Machine for Folding Envelopes; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a front elevation, partly in section, of our improved envelope-machine, the line *xx*, Fig. 2, indicating the plane of section. Fig. 2 is a plan or top view, partly in section, of the same. Fig. 3 is a detail face view of the vertically-adjustable pivoted blank-support. Fig. 4 is a detail transverse section of the same taken on the line *yy*, Fig. 3. Fig. 5 is a detail vertical section of the receiver, the line *zz*, Fig. 2, indicating the plane of section. Fig. 6 is a vertical section of the machine taken on the plane of the line *ww*, Fig. 1. Fig. 7 is a plan or top view, partly in section, of the machine, showing the parts in a somewhat different position from that shown in Fig. 2.

Similar letters of reference indicate corresponding parts.

Our invention consists in certain novel features of construction, combination, and arrangement, which will first be described in connection with all that is necessary to a full understanding thereof and then be clearly pointed out in the claims.

A in the drawing represents the frame of our improved envelope-folding machine. It is made of metal or other suitable material, of suitable size and shape, sufficiently strong to sustain the machinery which is connected with the folding mechanism. B is the horizontal driving-shaft, hung in the frame A below the top plate or table *a* of the same. From the face of the table *a* projects a vertical pin, *b*, to which is pivoted the blank-support C. This blank-support is a plate of the requisite form, with a flange, *c*, at its front edge. It has a curved slot, as shown in Fig. 2, so that it can be swung flush with a curved rib, *d*, projecting

from *a*, which rib enters said slot whenever the blank-support is swung against the fixed stops *e e*, as in Fig. 7. The blank-support can be held elevated above the plate *a* by means of a spring-catch, *f*, as shown in Fig. 3. In this elevated position of the blank-support an arm projecting from the latter fits against and under a hook, *g*, as shown in Figs. 3 and 4. *h* is a vertical pin projecting through the rib *d*, and provided with a spring which throws it up against the outer edges of the blanks on the support C, serving to keep them in place while the support is being lowered, and swung back whenever it is to be adjusted for a new supply. A sleeve, *i*, sliding on one of the stops *e*, rests slightly on the upper blank, and acts as a weight for all the blanks, preventing all but the upper blank from adhering to the gummer. The blanks are placed upon the table A, under the elevated plate C, the pin *h* being pressed down. These blanks are placed against the stops *e*, whereby they are brought into the right position. The pin *h* is then released, and tends to hold the blanks in place. The rib *d* prevents the blanks from resting flush upon the plates *a*, and admits the plate C when the same has been swung out, as in Fig. 2, and lowered to be put under the pile of blanks. Thenceforth the blanks rest on the plate C, are held in place laterally by the stops *e* and flange *c* and by the pin *h*, and held down by the sleeve *i*. From the pile on the plate C blanks are taken in proper succession by a gummed lifter, not shown. The lifter is gummed by a roller, *j*, which is hung in a vibrating frame, D. This frame D swings on a pin, *k*, and is, by a system of levers, *ll*, connected with a cam, *m*, on the shaft B, whereby, and by a counteracting spring, *n*, it receives the necessary motion for applying the gum to the lifter. The blank, which has been elevated and detached by the lifter, is taken from the same by a vibrating frame, E, which has hook-shaped arms, and acts in the ordinary manner. The frame E is affixed to a sleeve or tube, *o*, which surrounds the pin *k*, and has an arm, *p*, at its lower end, which receives motion by a cam, *r*, of the shaft B. The frame E carries the blank from the lifter over the folding apparatus—that is to

say, it moves from the position shown in Fig. 7 to that shown in Fig. 2. The blank is then forced down to the folders by a plunger, not shown, and has the several flaps turned over by the several pivoted fingers s of the folding mechanism, which operates in the well known or in suitable manner. Motion is imparted to the fingers s by a cam or cams, t , on the shaft B. The envelope, after having been folded, is elevated from the folder by a vertically-sliding yoke, F. The same rests upon a cam, v , of the shaft B, and is elevated by the same after every envelope has been folded, and is then drawn down by a spring, i^2 . The two arms of the yoke hold the envelope elevated in such a position that it can be conveniently removed by a vibrating "slide," G. This slide is a frame having downwardly-projecting fingers a^2 , and projects from the same tube o to which the frame E is affixed, so that consequently the movements of the frame E and G are simultaneous and in the same direction. The frames E and G being thus connected, and their movements alike, it follows that a blank will be taken to the folders by E whenever the slide G removes an envelope from the same. Considerable time and machinery are economized by this connection. The fingers a^2 of the slide G push the envelope from the yoke upon two spring-arms, I I, which are affixed at b^2 , against the under side of an upright case or receiver, H. This receiver is a slotted case or receptacle for the envelopes. The spring-arms receive the envelopes, as stated, from the yoke, and the fingers a^2 push the same along until they are just under the lower opening of the receiver. J is a vibrating comb pivoted to an arm or lever, L, which turns loose on the tube o , being affixed to a tube, c^2 , which surrounds said tube o . The tube c^2 has a projecting arm, d^2 , which is actuated by a cam, e^2 , of the shaft B, whereby the arm L is swung in a horizontal direction. It will be noticed that the pivots k , o , and c^2 occupy the same axis, being arranged one within the other. This arrangement economizes considerable in the putting up of the machine, and prevents a great deal of unnecessary friction. An arm, f^2 , projecting from the under side of the comb J, straddles the head g^2 of a T-shaped upright slide, M, which is supported by a lever, h^2 , and receives motion by a cam, j^2 , of the shaft B. Whenever an envelope has been placed upon the spring-fingers under the receiver the comb J is, by the arm L, swung under such envelope, and is then swung up by the elevation of the slide M so as to lift the

envelope from the said spring-arms. The latter are then free to receive another envelope by the slide G, and when that has arrived the comb is lowered and moved out of the way to let all the envelopes rest upon the spring-arms within the receiver. Before the next envelope arrives the comb again lifts the whole pile off the spring-arms and crowds them into the receiver, clearing the arms for the reception of another envelope. The receiver carries a slide, k^2 , which rests as a yielding weight on the envelopes deposited under it.

There are or may be projections on the upper sides of the spring-arms I, just under the case H, to prevent the envelopes from being returned to the folders with the slide.

Having thus described our invention, we claim for us as new, and desire to secure by Letters Patent—

1. The blank-support C, pivoted to the pin b , and combined with the spring-catch f , hook g , and pin h , to operate substantially as herein shown and described.

2. The sleeve or weight i , arranged on pin e , as described, for the purpose of holding down the blanks and preventing more than one from being taken up by the gummer, as set forth.

3. The vibrating frame E combined with the slide G, and connected with the same, as described, so that one blank is conveyed to the folder whenever a folded envelope is being removed therefrom, as specified.

4. The pivots k , o , and c^2 of the frames D E G and arm L, arranged around one axis, substantially as and for the purpose herein shown and described.

5. The vibrating frame G, having the fingers a^2 , combined with the spring-arms I, for conveying the envelopes to the same from the yoke F, as set forth.

6. The comb J, vibrating horizontally and vertically, and combined with the spring-arms I to lift the envelopes from said arms to clear them for the further reception of envelopes, as specified.

7. The vibrating frame L, combined with the pivoted comb J to actuate the same horizontally, as herein shown and described.

8. The upright slide M, combined by the arm f^2 with the pivoted comb J to actuate the same vertically, substantially as herein shown and described.

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