C. L. DAVIS.

ENVELOP FEEDING MECHANISM.

APPLICATION FILED AUG. 1, 1910.

1,088,131.

Patented Feb. 24, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

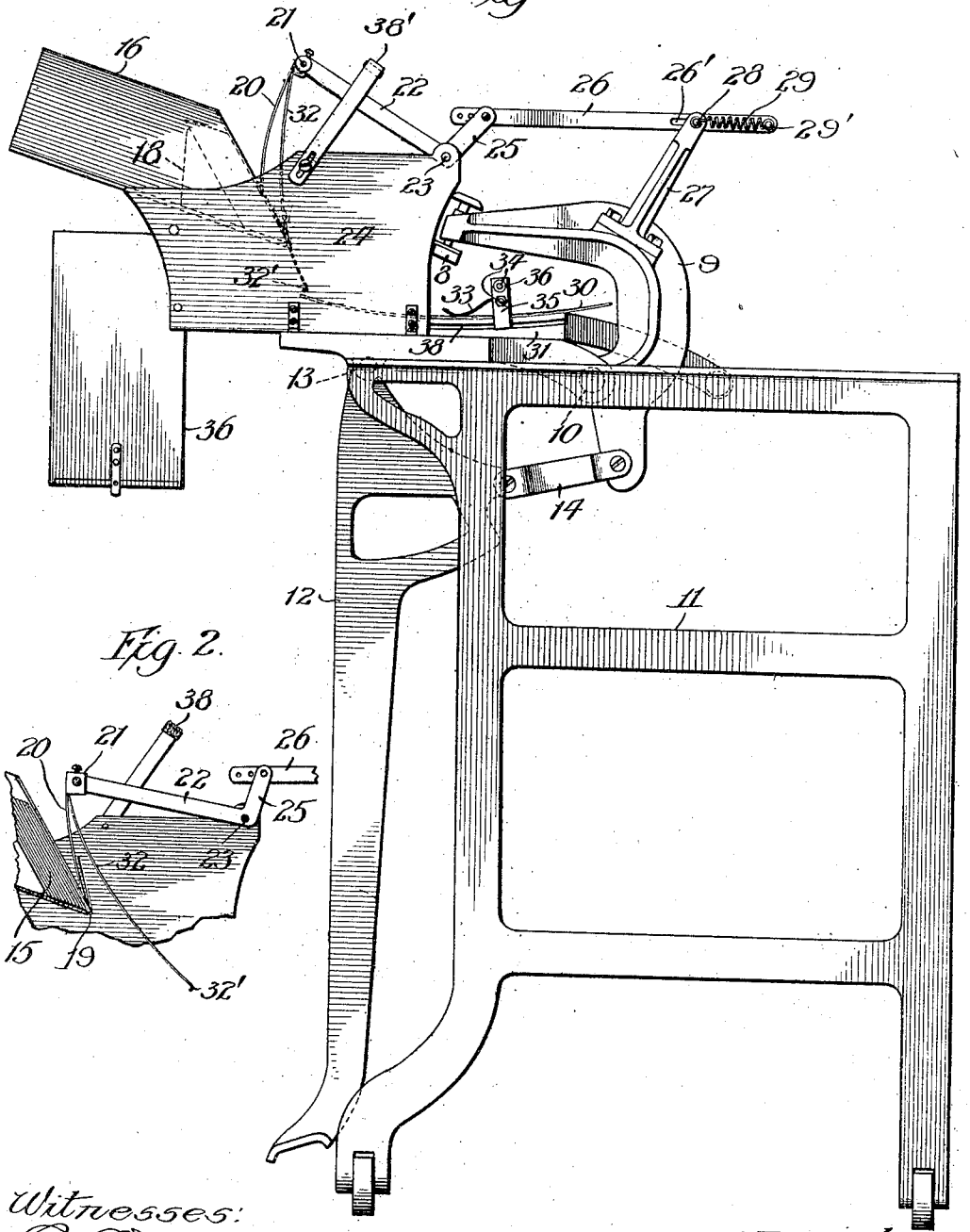


Fig. 2.

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3 SHEETS—SHEET 2.

Fig. 3.

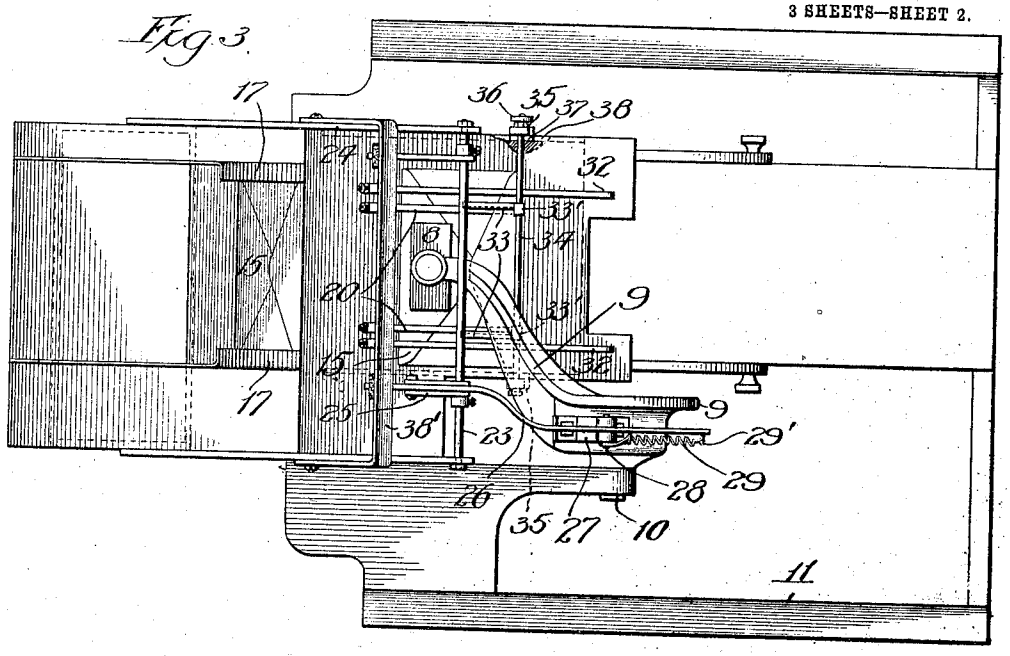
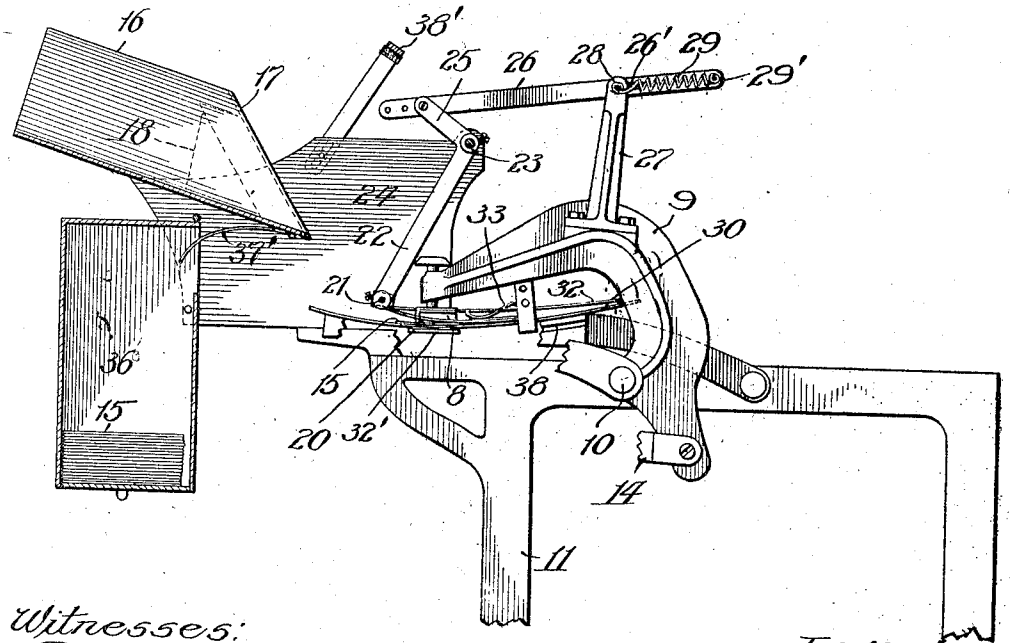


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

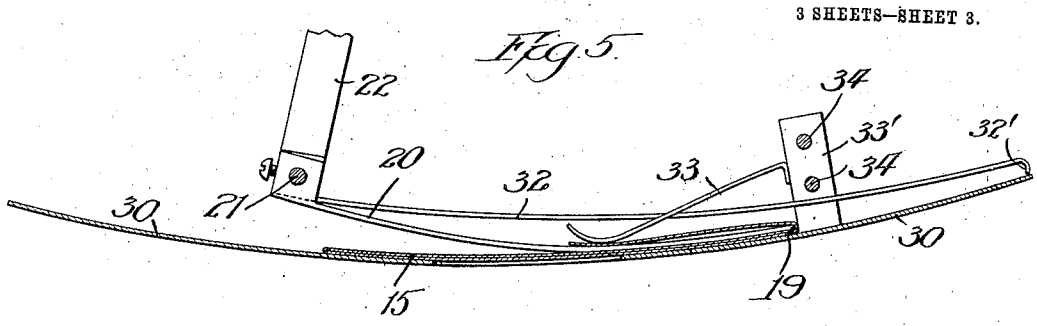


Fig. 6.

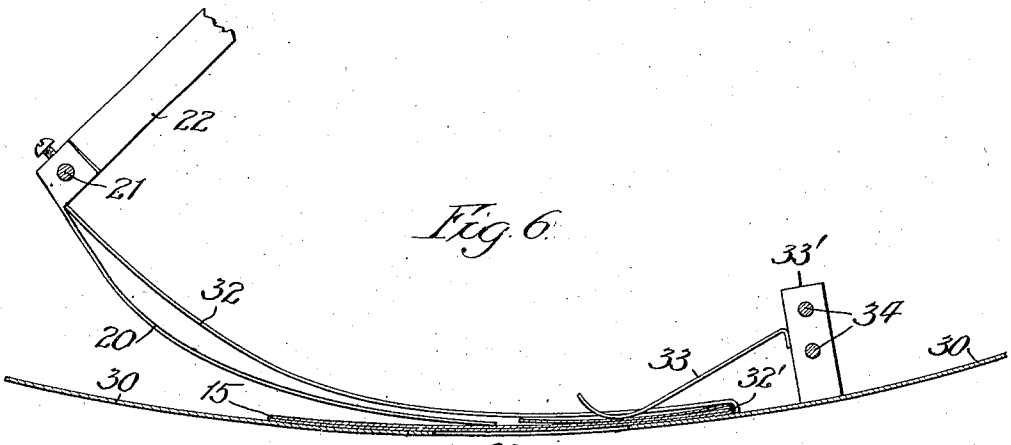
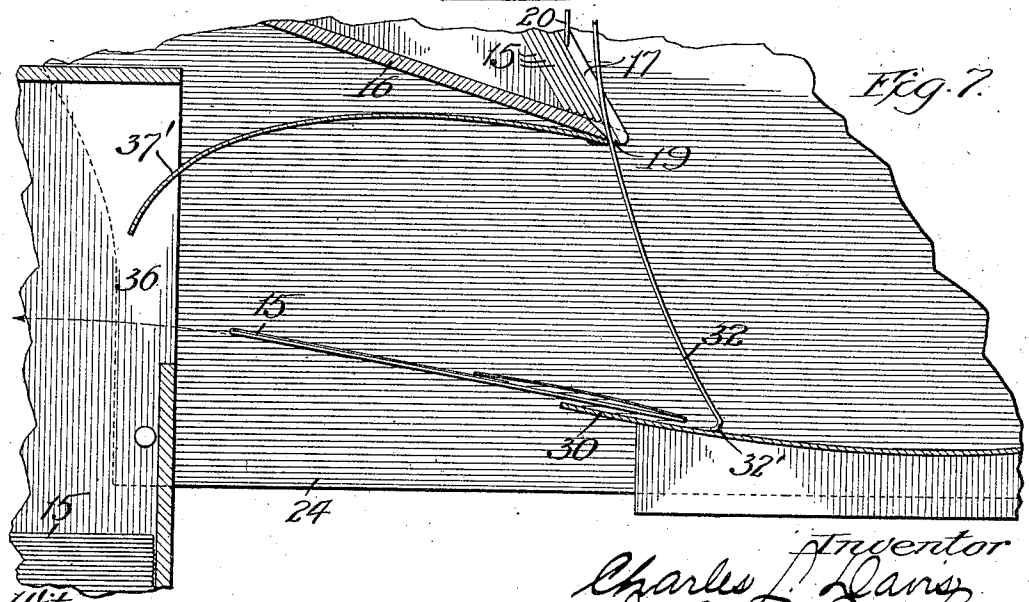


Fig. 7.



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UNITED STATES PATENT OFFICE.

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ENVELOP-FEEDING MECHANISM.

1,088,131. Specification of Letters Patent. Patented Feb. 24, 1914.

Application filed August 1, 1910. Serial No. 574,904.

To all whom it may concern:

Be it known that I, CHARLES L. DAVIS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Envelop-Feeding Mechanism, of which the following is a specification.

This machine relates to improvements in envelop feeding mechanisms and more particularly to that type in which the envelop is fed by means engaging the flap thereof and commercially known as "flap feed" mechanisms.

The object of the invention is to provide a compact machine of simple and inexpensive construction for feeding envelops at a high rate of speed to a printing or other machine and for delivering the envelops after printing in a convenient position for removal.

A further object of the invention is to move the envelop forward during the feeding operation and rearward during the delivery operation by one and the same general means so that during a complete cycle of operation of said means the envelop is fed forward to printing position, printed, and delivered in position for removal.

The invention also has other objects in view which will be pointed out fully hereinafter in the detailed description of one embodiment thereof illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a mechanism embodying the invention. Fig. 2 is a detail sectional view showing how the feeding fingers engage the flap of the envelop. Fig. 3 is a top plan view. Fig. 4 is a sectional view showing the parts in printing position. Fig. 5 is an enlarged detail sectional view showing the envelop fed forward to the limit of movement of the feeding devices. Fig. 6 is a similar view showing the delivery fingers engaging the envelop and the delivery movement started. Fig. 7 is also a similar view showing the delivery means at the end of the delivery movement and the envelop being discharged.

My invention can be embodied with printing or addressing machines of different varieties and in the drawings I have shown it applied to so much of a platen printing addressing machine as is necessary to understand the construction and operation. It will be understood, however, that I reserve the right to embody it in other machines with such changes and modifications as may be necessary for the purpose.

A platen 8 is carried by a platen arm 9 pivotally mounted at 10 in a main frame 11 and this platen is operated by a foot lever 12 pivoted to the main frame at 13 and connected to the platen arm by a link 14 (Fig. 1).

The envelops 15 are supported in an inclined chute 16 of suitable character, preferably provided at its forward end with inturned flanges 17 which overlap the ends of the first envelop in the chute and hold the envelops in place and with a follower 18 to hold the envelops in compact form and press them against the flanges 17. These flanges project slightly beyond the bottom of the chute to leave a discharge slot 19 through which the envelops are fed.

The envelops are arranged in the chute with the flaps forward and projecting upward, as shown in Figs. 2 and 3, so that the feeding devices may be engaged beneath the flap of the first envelop in the chute at each operation of the machine the edge of the envelop from which the flap projects being hereinafter referred to as the flap edge. These feeding devices comprise a pair of fingers 20 which are carried by a cross bar 21 adjustably supported in arms 22 mounted on a rod 23 which is pivotally supported in the side plates 24 fastened to the frame of the machine. A lever arm 25 rigid with the pivoted rod 23 is connected with a bar 26 which is adapted to be actuated by an arm 27 mounted on the platen arm. The bar 26 has a slot 26′ therein and a pin 28 on the arm 27 travels in said slot. A spring 29 is connected to the end 29′ of the bar 26 and to the pin 28. The lever arm 25 may be conveniently made integral with one of the arms 22 in the form of an angle lever, as shown in Fig. 2, if desired, so that on the movement of the platen arm the arms 25 and 22 will be swung on the pivot 23 to move the feeding fingers 20 from initial position (Fig. 1) to forward position (Fig. 4) and back again to initial position.

The feeding fingers are adapted to engage the flap edge of the first envelop in the chute beneath the flap and move the envelop forward on the face plate 30 mounted on the bed 31 of the machine to printing position

beneath the platen, the mechanism being timed to position the envelop in printing position before the platen engages therewith. The bed and the face plate are provided with openings in a familiar manner to permit the platen to force the envelop into engagement with a printing form 32″ shown in a general way in Fig. 4. While the printing operation is taking place the envelop should remain at rest and it is for this reason that I provide the pin and slot and spring connection between the arm 27 and the bar 26. The spring constitutes the connection between the arm and the bar whereby the bar is actuated by the arm and the slot enables the arm to travel relatively to the bar after the envelop has been positioned for printing during the further forward movement of the arm to carry the platen to the limit of its movement and force the envelop into contact with the printing form.

A pair of delivery fingers 32 is mounted on the cross bar 21 and these fingers have down-turned ends 32′. The delivery fingers 32 are located slightly in advance of the feeding fingers 20 and they are longer than the feeding fingers so that in the feeding movement of the mechanism the delivery fingers will not in any way interfere with the envelop or the feeding fingers but will slide forward over the face plate, the down-turned ends 32′ contacting therewith, in position to engage the flap edge of the envelop after it is printed and discharge it in a suitable manner. The delivery fingers are made longer than the feeding fingers so that the latter may sufficiently clear the envelop to enable the delivery thereof by the delivery fingers and for this purpose it is desirable that the feeding fingers should be disengaged from the flap of the envelop and also be sufficiently clear of operative engagement with the envelop so as not to interfere with the delivery movement.

Spring holding fingers 33 are fastened on blocks 33′ mounted on two cross rods 34. These rods are mounted in clips 35 adapted to engage the bed 31. The clips are made adjustable longitudinally of the bed to accommodate envelops of different widths and they can be made and secured in place in many different ways. One way is to fasten them together by the rods 34 which pass through the clips and are provided on their outer ends with thumb screws 36. The clips preferably have projections 37 to enter grooves 38 in the bed. By tightening screws 36 the clips are rigidly secured on the bed and the blocks 33′ are held in position to form stops against which the envelops are fed. The spring fingers 33 are upturned at their outer ends to permit the envelop to be fed thereunder and they bear upon the flap and are adapted to hold the envelop against return movement until engaged by the delivery fingers 32. Thus the spring holding fingers 33 hold the envelop in or about printing position on the initial return movement of the feeding fingers so that the latter may disengage from the envelop. Then the hooked ends 32′ of the delivery fingers engage the envelop and pull it away from the holding fingers and deliver it off the face plate into a receptacle 36 located beneath the chute 16. A guide 37′ is fastened on the bottom of the chute to insure the delivery of the envelop into the receptacle. A cushioned stop 38′ may be secured to the sides 24 to be engaged by the arms 22 to limit the forward movement thereof. The fingers 20 and 32 are preferably made of thin spring metal so that they will always be under tension. The feeding fingers 20 bear at their free ends against the first envelop in the chute and after feeding this envelop from the chute they press it against the face plate which acts as a guide in the feeding and delivering movements of the envelop as well as a support for the envelop during the printing operation. The delivery fingers 32 bear against the lower forward edge of the chute in position at rest against the face plate during the movement thereof.

The mechanism may be adapted for envelops of various widths by changing the connection of the lever arm 25 with the bar 26 and adjusting the holding fingers 33 accordingly. Thus my invention is capable of being readily and quickly adjusted for feeding envelops of different widths without necessitating the replacement of any of its parts.

This invention is capable of various modifications without departing from the essential features thereof and it will be understood that in the drawings I have shown a simple embodiment of the invention which can be varied as desired or required for application to machines of different kinds. Power can be easily applied for operating the platen instead of the foot lever shown and the receptacle 36 may be provided for receiving the envelops after they are discharged by the delivery fingers.

The operation of the invention has been very fully described and will be readily understood. The envelops are first carried forward and positioned in printing position by the feeding devices and held by the holding fingers against return movement while the feeding devices are being disengaged therefrom and until the envelop is engaged by the delivery devices which thereupon move the envelop out of printing position and deliver it in a suitable manner. This operation can be conducted with rapidity and the construction is such that an envelop is fed and delivered at each operation of the machine. The envelops are delivered beneath the supply from which they are fed,