No. 893,110. PATENTED JULY 14, 1908.

W. E. SWIFT.

ENVELOP MACHINE.

APPLICATION FILED OCT. 1, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

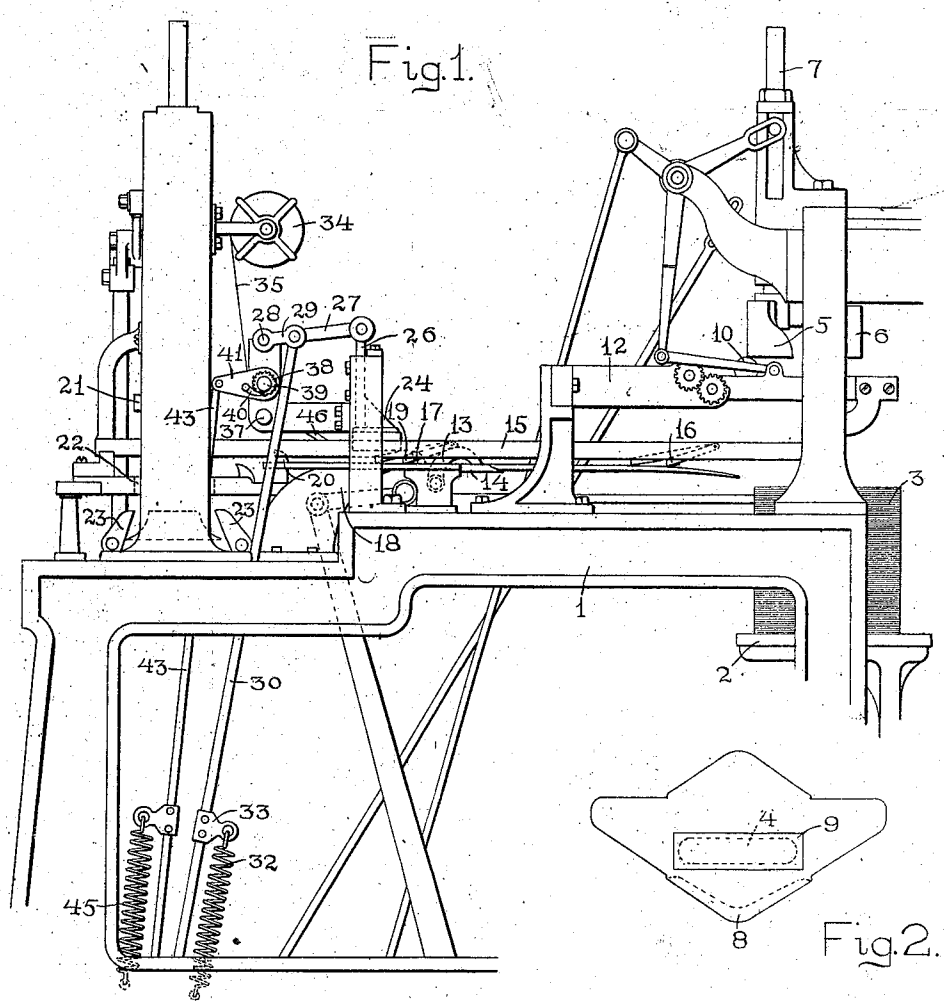
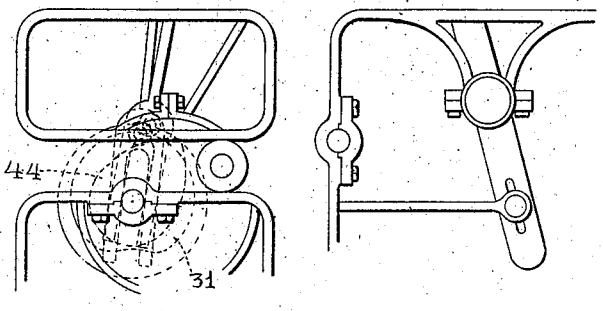


Fig. 2.



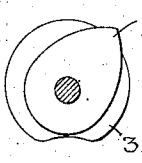


Fig. 7.

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2 SHEETS—SHEET 2.

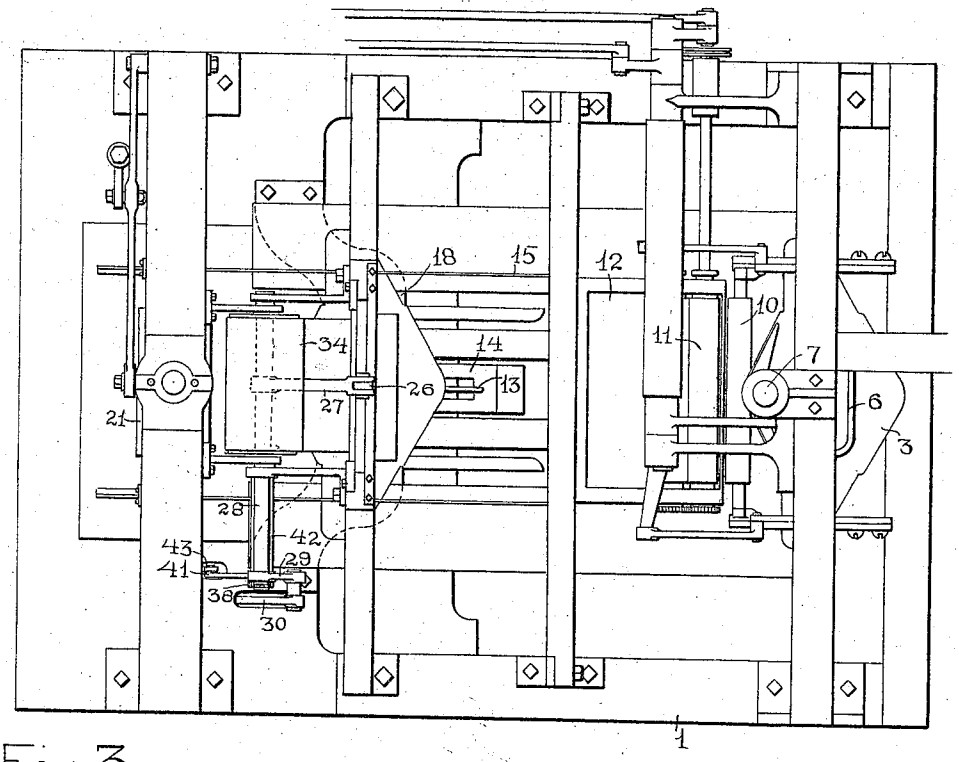


Fig. 3.

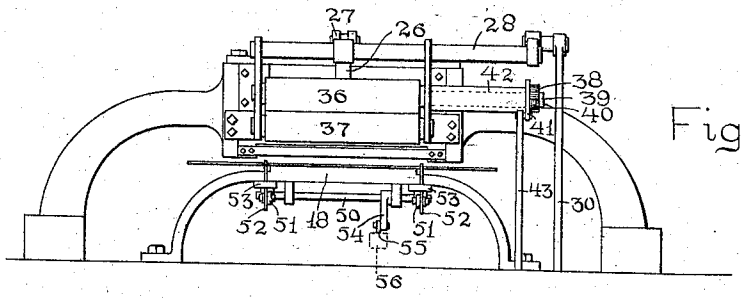


Fig. 4.

Fig. 5.

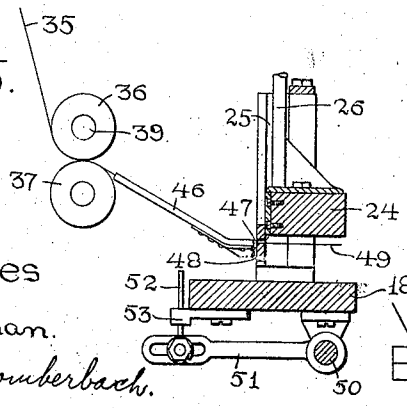
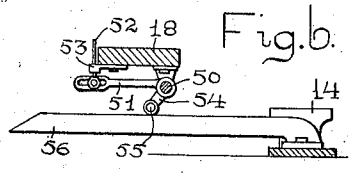


Fig. 6.



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UNITED STATES PATENT OFFICE.

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ENVELOP-MACHINE.

No. 893,110. Specification of Letters Patent. Patented July 14, 1908.

Application filed October 1, 1904. Serial No. 226,728.

To all whom it may concern:

Be it known that I, WILLARD E. SWIFT, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Envelop-Machines, of which the following is a specification accompanied by drawings, forming a part of the same, in which—

Figure 1 represents a side view of so much of an envelop machine as is necessary to illustrate the nature of my present invention. Fig. 2 is a plan view of an envelop blank having a strip of transparent paper applied thereto. Fig. 3 is a top view of the envelop machine. Fig. 4 is a detached view of that portion of the mechanism concerned in applying a transparent strip to the envelop blank. Fig. 5 represents on a larger scale and in sectional view a portion of the mechanism for applying a transparent strip to the envelop blank. Fig. 6 is a detail view of the device for registering the envelop blank on the pressing table, and Fig. 7 is a detached view of cams 31 and 44, shown by broken lines in Fig. 1.

Similar reference letters and figures refer to similar parts in the different views.

My present invention relates to a mechanism for manufacturing that class of envelops which are designed to disclose a printed or written address upon the inclosure, and this result is accomplished in the class of envelops referred to by forming an opening in the body portion of the envelop usually occupied by the address and covering the opening with a thin transparent sheet of paper, such, for example, as Japanese rice paper. The inclosure to be used in an envelop of this class is provided with an address placed in suitable position to register with the opening in the envelop and be disclosed through the transparent strip of paper covering the opening.

The object of my present invention is to provide means for applying the transparent covering to the opening of the envelop, and I have shown in the accompanying drawings the mechanism embodying my invention, as applied to an envelop machine in which the additional operations of gumming and folding the envelop blank are performed. I do not confine myself, however, to the embodiment of mechanisms for gumming and folding the envelop blank, in a machine for applying a transparent cover to the opening in the envelop, as that part of the mechanism hereinafter described and shown in the accompanying drawings which relates specifically to the operation of applying a transparent covering to the opening of the envelop blank may obviously be employed separately from the gumming and folding mechanisms; but for commercial reasons it is preferable to employ it in coöperation with the mechanisms which are now commonly employed for gumming the envelop blank and for folding the gummed blank into an envelop and I have therefore shown and described such mechanism in combination with the gumming and folding mechanisms of an envelop machine.

Referring to the accompanying drawings 1 denotes the frame of an envelop machine, 2 a blank supporting table, 3 a pile of envelop blanks held thereon. Each of the envelop blanks is cut substantially in the form shown in Fig. 2 with an elongated opening 4 formed in the body of the envelop and in the position usually occupied by the address, said opening 4 being indicated in Fig. 2 by a broken line. Above the pile of envelop blanks 3 are the gumming dies 5 and 6 carried upon a vertically reciprocating rod 7, the gumming die 5 being employed to apply gum upon the edge of the back flap of the blank in the position shown at 8, Fig. 2, and the die 6 is employed to apply gum on a narrow margin around the opening 4 in order to provide the means of adhesion of a strip of thin transparent paper 9 which covers the opening 4 as shown in Fig. 2. Gum is applied to the under surfaces of the gumming dies 5 and 6 by means of a traversing roll 10 which receives its supply from a gum roll 11 revolving partially immersed in a gum box 12.

The operation of gumming the envelop blank and raising the blank by its adhesion to the gummed surfaces of the dies 5 and 6 is the same as that now practiced in envelop machines in common use and forms no part of my present invention. As the topmost blank of the pile 3 is gummed and raised by the dies 5 and 6, its rear edge is then seized by a hinged gripper 13 on a reciprocating carriage 14, and the blank is drawn toward the rear of the machine beneath horizontal guides 15 into position to be engaged by pawls 16 which hold the blank from being returned at the next forward movement of the carriage. At the next rearward move-

ment of the carriage, the envelop blank held by the pawls 16 is engaged by projecting spurs 17 on the carriage and carried over a pressing table 18 where it is retained from reverse movement by pawls 19. At the next rearward movement of the carriage the blank is engaged by spurs 20 and carried beneath a vertically reciprocating plunger 21 by which it is pushed downward through a rectangular hole in a creasing plate 22 upon a folding bed where its flaps are folded over by hinged folders 23. Each envelop blank therefore in its movement from the pile of blanks 3 to the folding mechanism remains for a period at rest over the pressing table 18.

The above operations and the mechanisms by which they are performed, with the exception of the gumming die 6, are fully shown and described in Letters Patent of the United States, No. 401,462, issued to A. A. Rheutan, April 16, 1889, and form no part of my present invention. The only addition I make to the gumming, carrying and folding mechanisms of the Rheutan envelop machine consists in the gumming die 6 designed to apply a narrow strip of gum around the hole or opening 4 which has been previously formed in the envelop blank.

While the envelop blank with gum applied around its opening 4 dwells in a position of rest over the pressing table 18 and is retained by the pawl 19, I apply thereto a transparent strip or patch of paper 9 large enough to cover the opening 4 and overlap the envelop blank so as to entirely cover the gummed surface around the opening 4, the position of the patch 9 being represented in Fig. 2, and the mechanism for applying the patch of transparent paper to cover the opening in the envelop blank forms the subject matter of my present invention, and it consists in providing a pressing table 18 firmly supported upon the framework of the machine and arranged to support the envelop blank during the pressing operation. Above the pressing table 18 is a reciprocating presser foot 24 capable of sliding in vertical ways 25 and attached to a link 26 which is pivotally connected at its upper end with an arm 27 attached to a rock shaft 28 journaled in the framework of the machine.

One end of the rock shaft 28 is provided with a radial arm 29 which is pivotally connected to a link 30 actuated by a cam 31 which serves to hold the presser foot 24 in an elevated position during the movement of the envelop blank but allows the presser foot to descend during the period of dwell of the envelop blank on the table 18 by means of a spring 32 attached at one end to a bracket 33 held on the link 30 and at its opposite end to the framework of the machine. The transparent paper from which the patch 9 is formed is supplied from a coil 34 in a continuous strip 35 whose width is equal to the entire length of the patch 9. The continuous strip of transparent paper is carried between feed rolls 36 and 37, the upper of said feed rolls having an intermittent motion imparted thereto by means of a ratchet wheel 38 attached to the spindle 39 of the feed roll 37 and a pawl 40 carried upon a swinging arm 41 attached to a sleeve 42 journaled on the spindle 39 which is pivotally connected to a link 43, actuated by a cam 44 which serves to raise the swinging arm 41 to its highest position and allows it to be lowered by a spring 45 connecting the link 43 with the frame of the machine. As the continuous strip 35 is fed forward by the intermittent motion of the feed rolls 36 and 37, it is projected through a guide tube 46, Fig. 5, and through an opening 47 across a stationary shear blade 48 and is fed forward at each intermittent motion of the feed rolls 36 and 37 a distance equal to the width of the patch 9 beneath the presser foot 24 in the position denoted at 49, Fig. 5. The envelop blank is secured on the pressing table 18 in proper position to bring its opening 4 in registration with the overhanging patch of transparent paper 49, by a device shown in Figs. 4 and 6, consisting of a short rock shaft 50 journaled beneath the pressing table and carrying a pair of radial arms 51 to the free ends of which are adjustably attached registering pins 52 capable of a vertical sliding movement in lugs 53 as the shaft 50 is rocked. The shaft 50 is provided with a third radial arm 54 extending obliquely downward and carrying on its free end a roll 55 held in the path of an arm 56 which is carried by the reciprocating carriage 14 and arranged to contact with the roll 55 at the proper period and rock the shaft 50 to carry the registering pin 52 above the upper surface of the pressing table 18 and in position to engage the edge of the envelop blank and hold it in proper position on the pressing table 18 with its opening 4 registering with the end 49 of the transparent strip of paper.

The operation of my improved machine is as follows:—The envelop blank, gummed around the hole 4 by the die 6 and lifted from the pile 3 of blanks by the gumming dies 5 and 6, is seized by the gripper 13 and drawn toward the rear of the machine by the reciprocating carriage 14. At the next forward movement of the carriage the blank is engaged by the spurs 17 and on the next rearward movement carried over the table 18. By the rearward movement of the carriage the registering pins 52 are carried above the table 18, thereby engaging the envelop blank and holding it in the desired position on the table 18. During the next forward movement of the carriage, the strip 35 of transparent paper is fed over the hole 4 in the blank from the roll 34 by means of the partial revolution of the roll 36, driven by the ratchet wheel 38 actuated by the cam 44.

The presser foot 24 then descends, actuated by the cam 31, severing, by means of the knife 48, the transparent piece 9 from the strip 35, and carrying it forcibly into contact with the gummed surface around the hole 4. After this operation is completed the blank is engaged by the spurs 20, the carriage having completed a forward movement, and is carried beneath the folding mechanism by the next rearward movement of the carriage.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In an envelop machine, the combination of the following instrumentalities; means for gumming a portion of an envelop blank, a pressing table, a reciprocating carriage for transferring the gummed blank to said pressing table, means for holding the gummed blank in registration on said pressing table, means for feeding the end of a continuous strip into a stationary position over said blank while it is held on said table, means for severing said strip, means for bringing the severed piece into contact with the blank and exerting a pressure thereon, means on the reciprocating carriage for engaging said blank and carrying it to a folding mechanism and a folding mechanism for folding said blank.

2. In an envelop machine, the combination with a pressing mechanism comprising a stationary member, a feeding mechanism for feeding a gummed envelop blank to said pressing mechanism, with the ungummed side of said blank in contact with said stationary member, means for determining the position of said blank in contact with said stationary member, means for feeding the end of a continuous strip in registration with the gummed portion of said blank, and means for severing a portion from the end of said strip and carrying said severed portion into contact with said blank and exerting pressure thereon.

3. In an envelop machine, the combination with means for applying adhesive material to a portion of an envelop blank, a pressing mechanism comprising a stationary member, a reciprocating carriage for transferring the gummed blank to said pressing mechanism, with its ungummed side in contact with said stationary member, means for determining the position of said blank in contact with said stationary member, means for feeding the end of a continuous strip in registration with the gummed portion of said blank, means for severing a portion from the end of said strip and bringing said severed portion into contact with said blank and exerting pressure thereon, and means on said reciprocating carriage for engaging the blank and removing it from said pressing mechanism:

4. In an envelop machine, the combination with the gumming and folding mechanism and means for transferring an envelop blank from said gumming to said folding mechanisms, said blank in its passage having a period of dwell, of means interposed between said gumming and folding mechanisms for applying a piece severed from a continuous strip to said blank during its period of dwell, said means comprising a pressing mechanism, a feeding mechanism for feeding the end of a continuous strip into a stationary position over said blank in its period of dwell, a cutting mechanism for severing said continuous strip, and means for actuating said feeding, pressing and cutting mechanisms during the period of dwell of the blank.

5. In an envelop machine, the combination with the gumming and folding mechanism, and means for feeding an envelop blank from said gumming to said folding mechanisms, with a period of dwell, of means interposed between said gumming and said folding mechanisms for applying a transparent strip to the envelop blank, and comprising a pressing table, a presser foot coöperating with said table, a pair of feed rolls for feeding a continuous transparent strip, means for imparting an intermittent rotary motion to said feed rolls, an inclined guide for said strip as it leaves said feed rolls, a cutting mechanism, a fixed pressing table and a reciprocating presser foot, and means for actuating said feeding, cutting and pressing mechanisms during the period of dwell of the envelop blank.

Dated this 27th day of September 1904.

WILLARD E. SWIFT.

Witnesses:

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PENELOPE COMBERBACH.