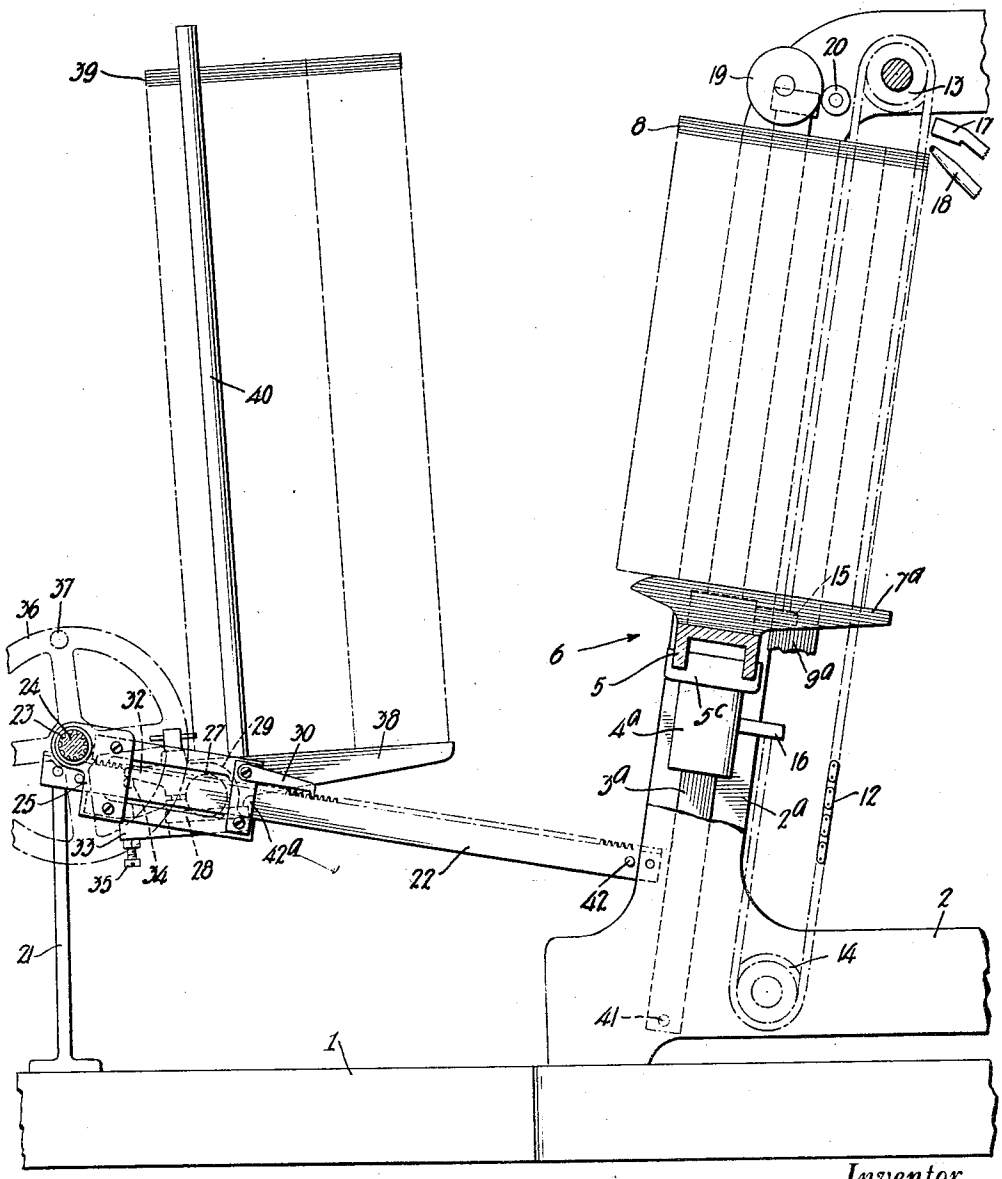
June 2, 1931. A. NOVICK 1,807,864

ENVELOPE MAKING MACHINERY

Original Filed Nov. 10, 1927 3 Sheets-Sheet 1

Fig. 1.



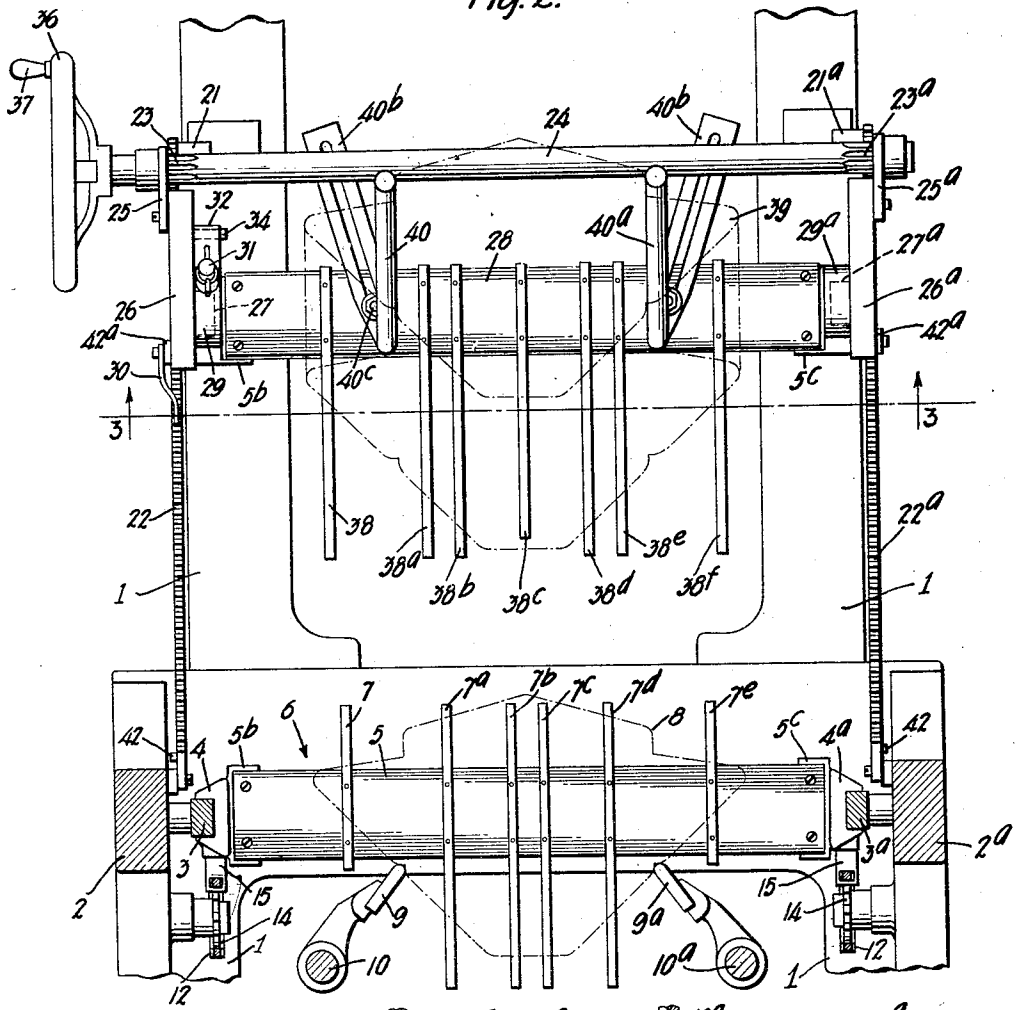
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Fig. 2.



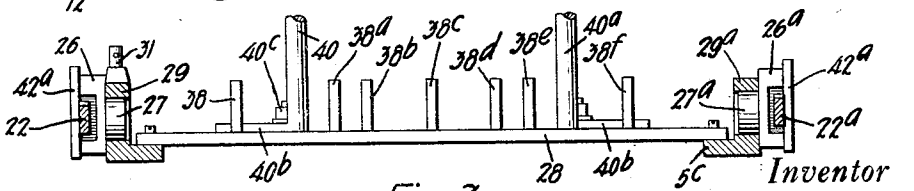


Fig. 3.

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Fig. 4.

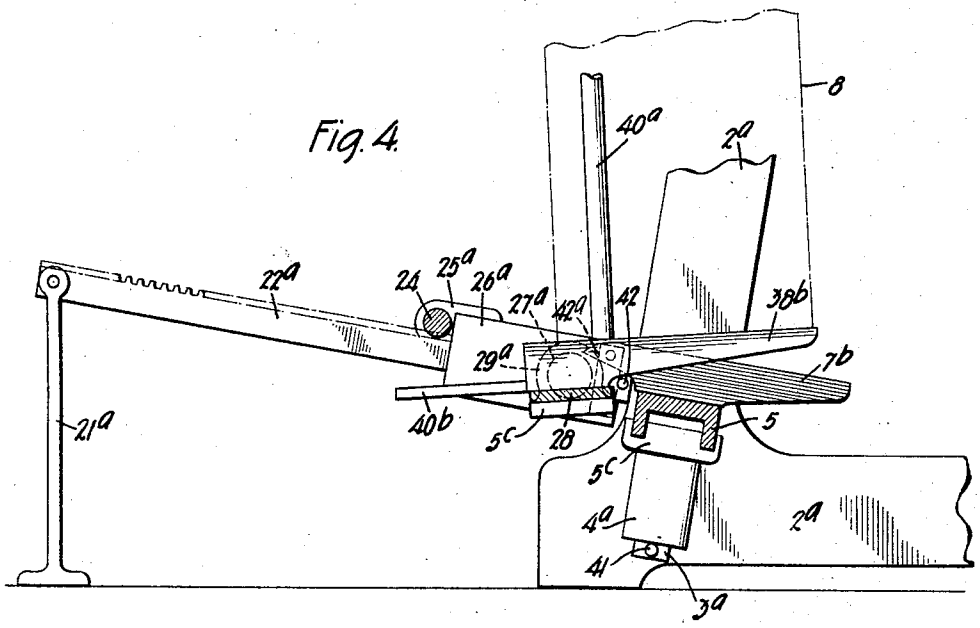
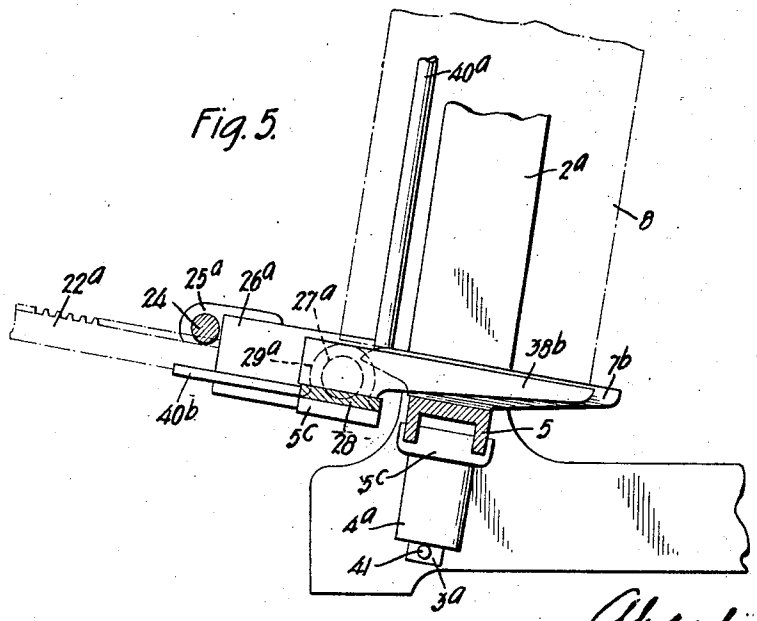


Fig. 5.



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Patented June 2, 1931

1,807,864

UNITED STATES PATENT OFFICE

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ENVELOPE MAKING MACHINERY

Application filed November 10, 1927, Serial No. 232,274. Renewed September 24, 1930.

This invention relates generally to envelope-making machinery, and has particular reference to devices for feeding envelope-blanks into the folding mechanism of such machinery.

One of the objects of the invention is to provide improved means for delivering to the feeding device supplies of envelope-blanks, whereby such delivery is effected more expeditiously and with greater facility than is possible by means now in use—thus increasing the output of this class of machinery.

In envelope-making machinery as at present constructed, it is customary to load the blanks directly upon an elevating mechanism by which they are raised to feeding means which automatically transfers them to folding mechanism. In order that the machine may run for long periods of time without replenishing the supply of envelope-blanks, the elevating mechanism is constructed and arranged to receive a stack of blanks so large and heavy that it is not feasible for the attendant to place the entire stack in position at a single handling. He must therefore divide the stack into several relatively small lots, each of which requires to be placed upon the elevating mechanism and aligned in position thereon ready for delivery to the feeding device. This necessitates stopping the machine for a considerable length of time whenever the supply of blanks has become exhausted—thereby restricting the output of the machine.

The elevating, feeding and folding of the blanks being accomplished automatically, one attendant is able to supervise the operation of several envelope-making machines. In accordance with the present invention, means are provided whereby the attendant can, while a machine is in operation, pile, in small lots, a stack of blanks upon a loading carriage. When the supply of blanks in the elevating and feeding mechanism has become exhausted, the loading carriage is moved into such position that its stack of blanks may be quickly and easily transferred in one load to the elevator. The machine thus requires to be stopped but for a brief space of time, rather than for the considerable length of time now required for loading small lots of blanks upon the elevator.

The following is a description of a loading carriage embodying one form of the invention, but it will be understood that various modifications and changes may be made therein without departing from the spirit of the invention and without exceeding the scope of the claims.

The invention will best be understood by reference to the accompanying drawings, wherein the present preferred embodiment thereof is illustrated and in which

Figure 1 is a side elevation, partly in section, of envelope-blank elevating and feeding mechanism, and, in operative relationship therewith, a loading carriage embodying one form of the invention;

Figure 2 is a top plan view of Figure 1, certain of the parts being shown in section;

Figure 3 is a section on the line 3—3 of Figure 2, looking in the direction indicated by the arrows;

Figure 4 is a fragmentary detail showing a portion of the elevating and feeding mechanism and also the loading carriage as it appears when moved into position preparatory to being tilted forwardly in order to deliver its load of blanks to the elevator; and

Figure 5 is a fragmentary detail, similar to Figure 4, but showing the relationship of the elevating and feeding mechanism to the loading carriage, after the latter has been forwardly tilted in order to deliver its stack of blanks to the elevator.

Like reference characters indicate like parts throughout the drawings.

Referring now to the drawings: 1 denotes a bed-plate, mounted upon which are two side frames, 2 and 2*a*. Attached to each such side frame is an upright elevator guide member, such members being designated, respectively, as 3 and 3*a*. Partially embracing said guide members are shoes, 4 and 4*a*, having lugs 5*b* and 5*c* to which is secured a cross-bar portion 5 of elevator 6. Attached to the platform of elevator 6 (Figures 2 and 3) are a plurality of envelope-blank supports, 7, 7*a*, 7*b*, 7*c*, 7*d* and 7*e*, upon which supports a stack of envelope-blanks (indicated by dot-

and-dash lines and designated by the reference numeral 8) is adapted to rest. The stack of blanks is operatively located upon its supports by bringing indented portions of such blanks into abutting relation with positioning bars 9 and 9*a*. These bars are rotatively mounted upon shafts 10 and 10*a*, respectively, in order to permit of their adjustment to accommodate envelope-blanks of varying sizes and shapes.

Referring to Figure 1: In the progress of the operation of the machine, elevator 6, with its load of envelope-blanks, is periodically raised by suitable mechanism such as sprocket chains 12, one at each side of the machine, and actuated in any well-known manner by devices which are not shown and which form no part of the present invention. Each sprocket chain travels over sprockets 13 and 14, and has one of its ends attached to bracket 15 and the other such end attached to bracket 16, said brackets being mounted upon the shoes 4 and 4*a* of elevator 6. Actuated by mechanism co-operative with that which actuates sprocket chains 12 to raise elevator 6, is sucker finger 17, which is periodically depressed and brought into contact with the top envelope-blank of the stack 8, whereby one portion of such top blank is raised. Thereupon compressed air from a plurality of nozzles, such as 18, passes under the raised edge of the top blank, carrying such blank into the bite of rotating rolls, 19 and 20, which rolls convey it to further operating mechanism. Roll 20 is preferably so actuated that there is imparted thereto a planetary movement relative to roll 19, whereby, when the top blank is blown into contact with roll 19, said roll 20 is in an upward position with reference to roll 19, and thereafter moves in a generally downward direction to grip the edge of the blank.

Mounted upon bed-plate 1 are two upright members, 21 and 21*a*, the purpose of which is to support, respectively, two racks, 22 and 22*a*, meshing with which racks are two pinions, 23 and 23*a*, which may be formed integral with a shaft 24, journalled in brackets 25 and 25a, mounted upon carriage side members 26 and 26*a*, embracing said racks, respectively. Side member 26 is provided with a trunnion 27, and side member 26*a* with a similar trunnion 27*a*. Tiltable carriage platform 28 is provided with bearing members 29 and 29*a*, adapted to embrace trunnions 27 and 27*a*, respectively. Pivotally mounted on carriage side member 26 is a pawl 30, adapted to engage teeth of the rack 22, in order to prevent movement of the carriage toward the elevating and feeding mechanism. Bearing member 29 is preferably split and provided with a clamping screw 31, for locking the platform 28 to the side member 26, in order to prevent accidental tilting of said platform. This bearing member 29 is also provided with two lugs, indicated respectively, by the reference numerals 32 and 33. Lug 33 is provided with an adjustable set-screw, 35, adapted to contact with pin 34, which is mounted in side member 26 of the carriage, thereby limiting the forward tilting movement of carriage platform 28. Lug 32 is also adapted to contact with the pin, in order to similarly limit the backward tilting movement of said platform. Pinion shaft 24 carries a hand-wheel 36, having attached thereto a handle 37. Mounted upon carriage platform 28 are a plurality of envelope-blank supports 38, 38*a*, 38*b*, 38*c*, 38*d*, 38*e* and 38*f* (Figure 2), upon which supports a stack of blanks (indicated by dot-and-dash lines and designated by the reference numeral 39) is adapted to rest. The stack of blanks is operatively located upon these supports by bringing indented portions of such blanks into abutting relation with positioning bars 40 and 40*a*. Bars 40 and 40*a*, it will be noted from Figures 1 and 4, are tilted slightly to the left of Figure 1 for the purpose of allowing the stack to lean against said bars. On the other hand, stack support 6 is inclined slightly in the reverse direction whereby the same result of overcoming the tendency of the blanks to slip off the stack in the direction of the unsupported side, is obtained. Each of these positioning bars is provided with a slotted foot 40*b*, whereby it may be adjustably attached to carriage platform 28 in order to permit of adjustment to accommodate envelope blanks of varying sizes and shapes, bolts 40*c* passing through said feet to secure the base 40, 40*a* in desired positions.

The mode of operation of the device is as follows: with the pawl 30 in engagement with teeth of the rack 22, as shown in Figure 1, and with clamping screw 31 tightened to clamp the carriage platform 28 to trunnion 27; and while the envelope-making machine is in operation and elevating and feeding the stack 8 into the folding mechanism, the attendant places upon the envelope-blanks supports 38, 38*a*, 38*b*, etc., blanks in lots of such size as may be conveniently handled, bringing such blanks into abutting relation with positioning bars 40 and 40*a*, in the manner hereinbefore described. In the course of the operation of the machine, the stack of blanks 8 will become exhausted; and when this occurs, the machine is stopped, and the attendant rotates (by a crank or other suitable means not shown) the shaft which carries sprockets 13, thereby lowering the elevator 6 until it contacts with stop 41 (Figure 1). He then grasps handle 37 of hand-wheel 36, releases pawl 30 from engagement with rack 22, and, by rotation of the hand-wheel and because of the meshing of pinions 23 and 23*a* with racks 22 and 22*a*, respectively, moves

the loading carriage, together with its stack of blanks, downward along the inclined guides formed by said racks, and into the position shown in Figure 4, such forward movement being limited by stops 42 (Figures 1 and 4), with which straps 42*a* secured to the carriage side members cooperate. Clamping screw 31 is then loosened and carriage platform 28 is forwardly tilted into the position shown in Figure 5. As appears from Figure 2, envelope-blank supports 38, 38*a*, 38*b*, etc., mounted upon the loading carriage platform 28, are staggered with reference to the similar envelope-blank supports 7, 7*a*, 7*b*, etc., which are mounted upon the elevator platform, so as to be located therebetween when the loading platform and the elevating mechanism are in the delivering relationship indicated in Figure 5. The several parts are so constructed and arranged that when the loading carriage platform 28 has been forwardly tilted to the position shown in Figure 5, the tops of envelope-blank supports 38, 38*a*, 38*b*, etc. are below the tops of envelope-blank supports 7, 7*a*, 7*b*, etc. Thus, in the process of forwardly tilting the platform 28, the weight of its load of blanks will have been transferred to the supports 7, 7*a*, 7*b*, etc. of the elevator platform, 6. Reversal of rotation of hand-wheel 36 will move the loading carriage upward and to the left (as shown in Figure 1), along the racks 22 and 22*a*, to its initial position, where pawl 30 is again thrown into engagement with teeth of rack 22. The loading carriage is then tilted backwardly until lug 32 contacts with stop 34, when clamping-screw 31 is tightened, thereby locking platform 28 to trunnion 27 and preventing accidental tilting thereof during the subsequent re-loading of said platform.

The device comprises simple, inexpensive and efficient means for receiving, locating and supporting a large stock of envelope-blanks, while the envelope-making machine is continuing to operate; and for quickly and conveniently moving said stack into position with reference to the elevating mechanism, and delivering the same thereto. The time of interruption of the operation of the machine is thus greatly reduced and the output of envelopes is correspondingly increased.

I claim:

1. In an envelope-making machine, the combination of envelope-blank feeding means, envelope-blank elevating means, a tiltable platform constructed and arranged to receive a supply of blanks, a track along which said platform is adapted to be moved, and means for moving said platform along said track and into juxtaposition with said elevating means in order to deliver said supply of blanks to said elevating means.

2. In an envelope-making machine, the combination of means for feeding envelope-blanks, a supporting structure adapted to receive a supply of blanks, an inclined track for moving said supporting structure into juxtaposition with said feeding means, and means for preventing movement of said supporting structure along said track.

3. In an envelope-making machine, the combination of envelope blank feeding means, envelope blank elevating means, a loading carriage for receiving a supply of envelope blanks, means for moving said carriage into juxtaposition with said elevating means, and tiltably operable means for transferring said supply of blanks from said carriage to said elevating means.

4. In an envelope-making machine, the combination of envelope blank feeding means, a tiltable loading platform constructed and arranged to receive a supply of blanks to be delivered to said feeding means, a carriage for said platform, and means for limiting the tilting movement of said platform, relative to said carriage.

5. In an envelope-making machine, in combination, means for feeding envelope blanks from a stack, including a support upon which the stack rests, a reserve supply support upon which a stack of reserve blanks rests, said supports being arranged so as to permit one to move within the other, means for bringing the reserve supply support into juxtaposition with the blank feed support, and means permitting one of said supports to move vertically past the other to effect the transfer of blanks from said supply support to said feed support.

6. In an envelope-making machine, in combination, means for feeding envelope blanks from a stack, including a support upon which the stack rests, a reserve supply support upon which a stack of reserve blanks rests, said supports being arranged so as to permit one to move within the other, means for bringing the reserve supply support into juxtaposition with the blank feed support, and means for tilting said reserve supply support to effect transfer of said blanks from said reserve supply support to said feed support.

7. In an envelope-making machine, a blank feed support, a platform normally disposed to one side of said machine for receiving a reserve stack of blanks, said platform including vertically extending supports and being tilted slightly so as to throw a portion of the weight of the stack against said supports, a track along which said platform is adapted to be moved into juxtaposition with said blank feed support, and means for transferring blanks from said platform to said blank feed support.

8. In an envelope-making machine, a blank feed support, a platform normally disposed to one side of said machine for receiving a reserve stack of blanks, a track along which said platform is adapted to be moved into juxtaposition with said blank feed support,

means for transferring blanks from said platform to said blank feed support, said track being inclined toward said blank feed support, and means for locking said platform to said track.

9. In an envelope-making machine, a blank feed support, a platform normally disposed to one side of said machine for receiving a reserve stack of blanks, a track along which said platform is adapted to be moved into juxtaposition with said blank feed support, and a rack and pinion associated with said track for regulating the feed of said platform toward said blank feed support.

In testimony whereof I have affixed my signature to this specification.

ABRAHAM NOVICK.