L. E. MORRISON.

ENVELOP MANIPULATING MECHANISM.

APPLICATION FILED MAR. 26, 1908.

1,106,470.

Patented Aug. 11, 1914.

3 SHEETS—SHEET 1.

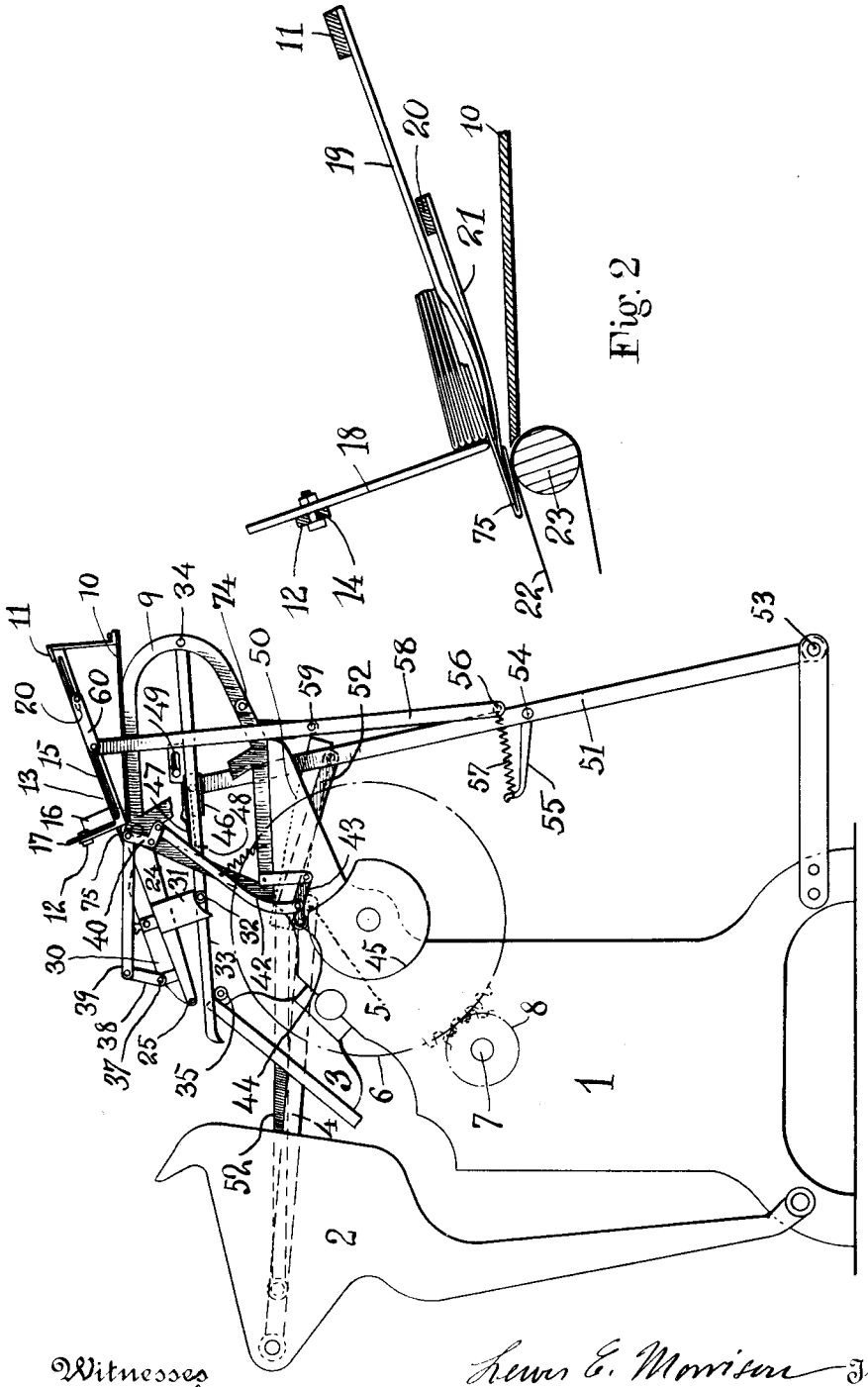

Fig. 1

Fig. 2

Witnesses
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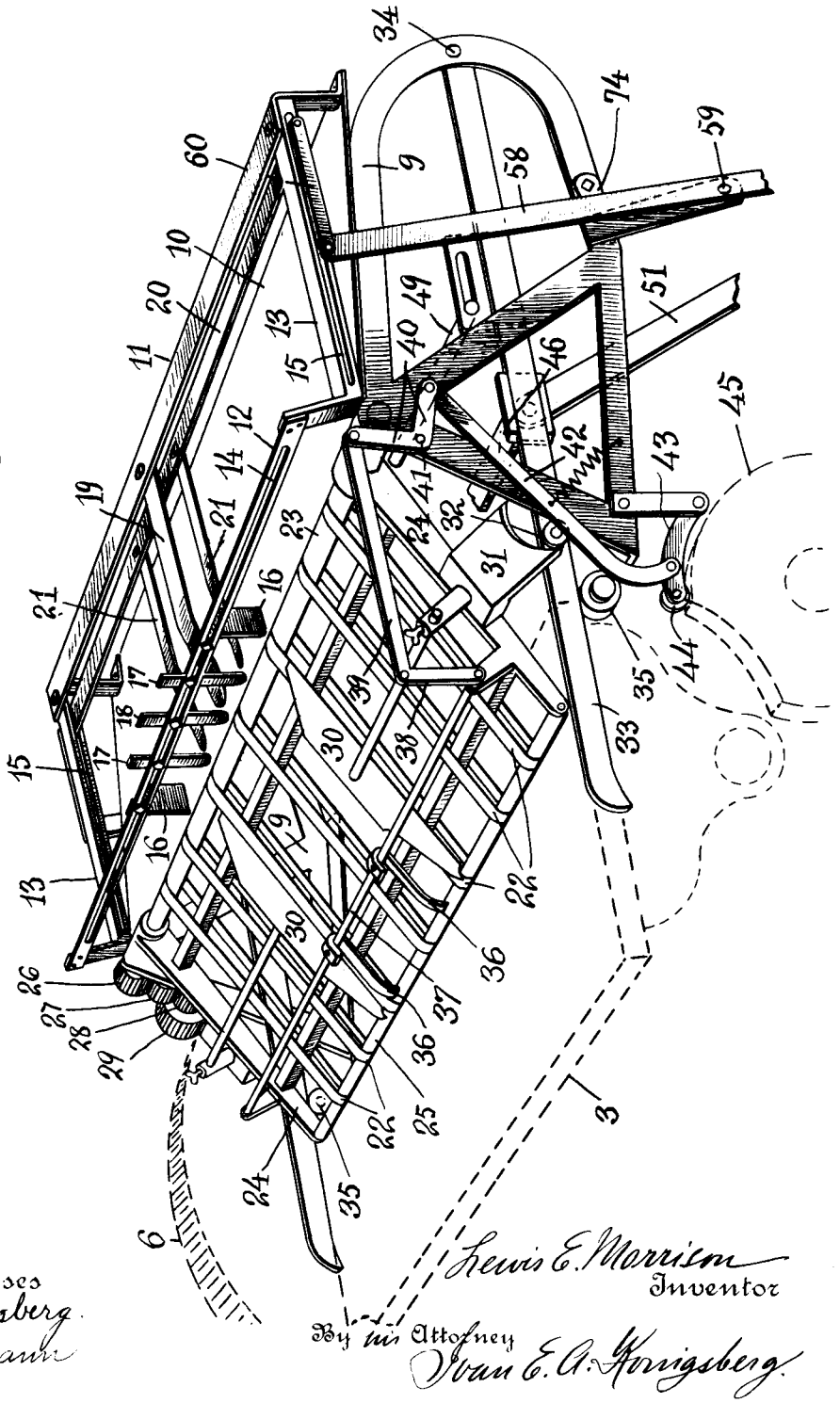
3 SHEETS—SHEET 2.

Fig. 3



Witnesses
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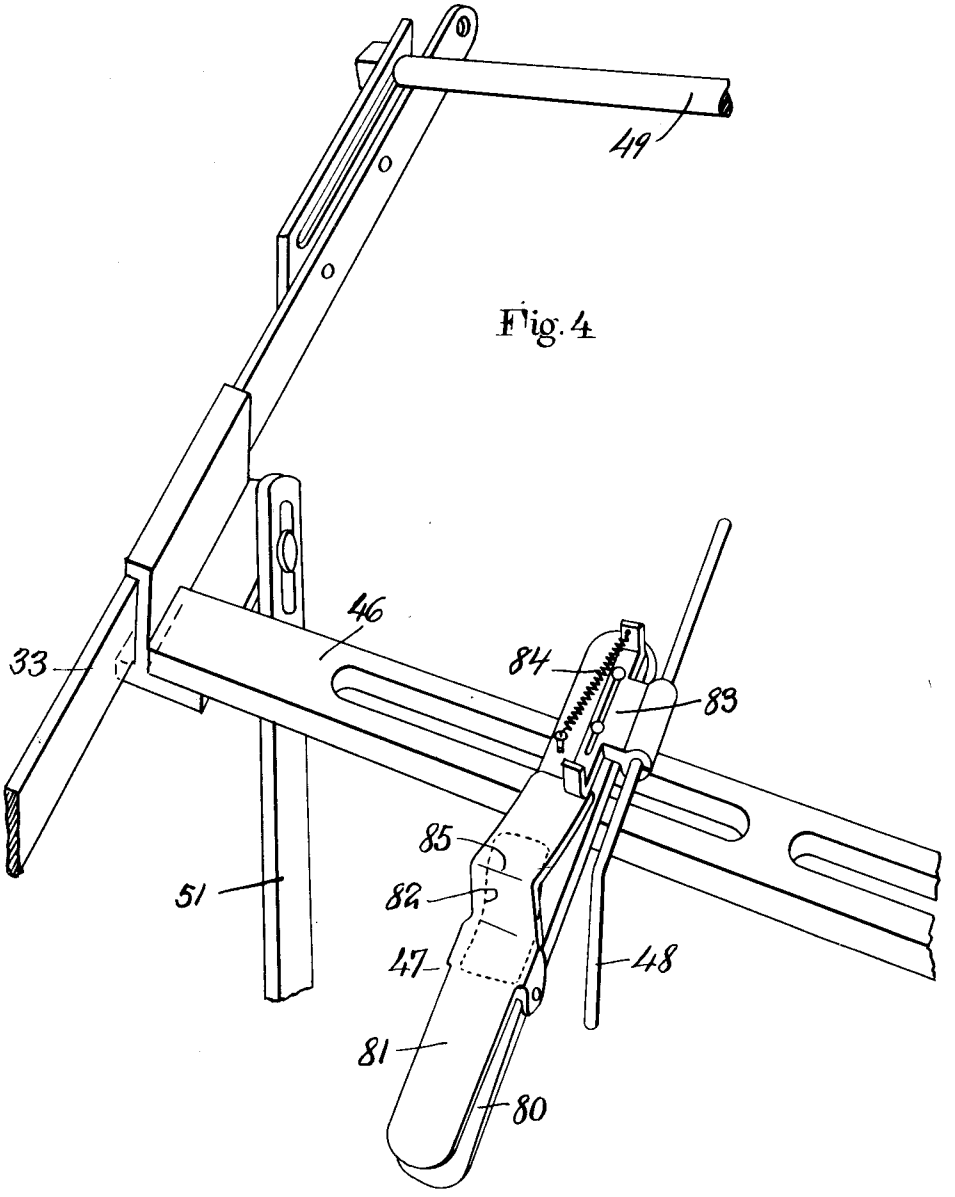

Fig. 4

Witnesses
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UNITED STATES PATENT OFFICE

LEWIS E. MORRISON, OF NEWARK, NEW JERSEY, ASSIGNOR TO HIMSELF AND MATTHIAS PLUM, OF NEWARK, NEW JERSEY.

ENVELOP-MANIPULATING MECHANISM.

1,106,470. Specification of Letters Patent. Patented Aug. 11, 1914.

Application filed March 26, 1908. Serial No. 423,395.

To all whom it may concern:

Be it known that I, LEWIS E. MORRISON, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Envelop-Manipulating Mechanisms, of which the following is a specification.

This invention relates to an improvement in devices for manipulating envelops on printing machines.

More particularly it relates to a mechanism to be attached to and operated in combination with a platen press.

The particular object of the invention is to provide an automatic envelop feed of simple construction and of such a character that it may be readily attached to and operated by an ordinary job press, without necessitating any changes in the construction of the press.

In the present instance there is disclosed an automatic envelop separating mechanism, which separates the single envelop from a pile and presents it to the feeding mechanism proper, which latter conveys the envelop on to the movable platen of the press. After the envelop is printed, it is removed from the press by a delivery mechanism and deposited in a suitable receptacle for final removal. The entire operation is automatic and the various moving parts are actuated and operated from the press itself.

The conveying or feeding mechanism and also the delivery mechanism have been described by me in two applications filed Feb. 17, 1908, Ser. No. 416,203 and March 6, 1908, Ser. No. 419,480 respectively, and the construction of these two mechanisms do not form parts of this application, except as to their performances with respect to the handling of the envelop.

The detailed construction and operation of the various parts are fully set forth in the following specification, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a job press equipped with an envelop manipulating mechanism embodying my invention, Fig. 2 is a detail view, showing how an envelop is separated, and Fig. 3 is a perspective view of the envelop separating and feeding mechanism. Fig. 4 is a perspective view of a gripper and adjacent parts.

In the said drawings, the reference numeral 1 indicates the frame of the press. 2 is the oscillating form carrier, while 3 denotes the oscillating platen. The form carrier is operated by means of the connecting rods 4,—one on either side,—pivoted at 5 to the gear 6, which is driven from main shaft 7 by pinion 8. These parts are found on every job press of this type.

In front of the platen I mount two brackets 9 for the supports of the various parts comprised in my invention. On top of the brackets is mounted a feed table 10 and on this feed table is suitably supported a frame comprising the front and rear bars 11 and 12 and the side brackets 13, 13. The rear bar 12 is provided with a slot 14, and the brackets 13 have slots 15. Depending from and adjustably carried by the bar 12 are two side guides 16 at right angles to the bar, and three stops 17, 17 and 18. An arm 19 is fixed to the front bar 11 and supports the pile of envelops, which rest against the said stops. As seen in Fig. 2 the center stop 18 is so adjusted that between it and the arm 19 there is just space enough to permit an envelop 75 to pass. Guided in the slots 15 is a movable feed bar 20, which carries the two fingers 21, 21, which serve to separate the bottom envelop from the pile and push it out under the stop 18 and on to the tapes 22, which together with the adjacent parts form the subject matter of the first application above referred to, so that only a brief description is necessary here.

Journaled in the brackets 9 is the one tapeshaft 23 upon which is pivoted two swinging arms 24, 24 which support the rear tapeshaft 25. The tapes are driven from shaft 23 through the instrumentality of the gears 26, 27, 28 and 29, which latter meshes with the big gear 6 on the press, while the gear 26 is fast on tapeshaft 23. While passing over the tapes the envelop is guided by the adjustable side guides 30. The arms 24 are each provided with a cam 31, which rests on the roll 32 on arm 33 pivoted at 34 on the brackets 9. The arms 33 rest on two rolls 35, one on either side of the platen, so that, as the platen moves the arms 33 are oscillated and in turn oscillate the feeding mechanism.

To insure that the envelop leaves the tapes at the right time corresponding to the timing and position of the platen, there is provided two adjustable stops 36 carried by rock shaft 37, which is rocked periodically

through the instrumentality of the arm 38, link 39, bell crank 40 pivoted at 41, link 42 and arm 43 carrying cam roll 44, which latter coacts with the platen locking cam 45. This cam is found on all presses of this type and serves to lock the platen in printing position in a well known manner.

After the envelop has been printed it is removed by the delivery grippers, which will now be described.

Movably carried by the arms 33 is a gripper carriage 46 having two or more grippers 47. The carriage is reciprocated in such a manner that it reaches its rearmost position, when the platen has finished its forward movement and is in the position shown in Fig. 3. At this moment the grippers are closed and seize the envelop, by each gripper having a member 48 which abuts the platen to effect the closing of the gripper. The gripper carriage now travels forward and at the proper time, the grippers are opened by abutting and passing under the rod 49, which is adjustably carried by the arms 33 and the envelop is dropped in the receptacle 50.

Referring to Fig. 4 it will be seen that the gripper 47 is made up of a lower fixed jaw 80 upon which is pivoted an upper jaw 81. A flat spring 82 tends to close the grippers. A sliding member 83 is mounted on the lower jaw 80 and is under tension of the spring 84 which pulls in a direction toward the upper gripper jaw. The movement of this sliding member is limited by a slot and stops as shown. The aforesaid member 48 is frictionally carried by the sliding member 83. When at the end of the rearward stroke, the member 48 abuts the end of the platen thus forcing the member 83 away from the upper jaw which closes upon the envelop by the spring 82. At the end of the forward stroke, the high point 85 of the upper jaw meets and passes under the rod 49, this opens the gripper, the envelop drops in the receptacle 50 and the slide 83 under the pull of the spring 84 snaps over the end of the upper jaw keeping the grippers open as shown.

The gripper carriage is reciprocated by means of the oscillating arms 51, one on each side and one of which is connected by link 52 to the connecting rod 4. As the latter reciprocates, the arms 51 swing on their pivot 53 and reciprocate the gripper carriage 46 on the arms 33. Stretched between the arms 51 is a rod 54 having a hook 55. Between this hook and a rod 56 is a spring 57 which keeps the rod 56 against the arms 51. The rod 56 is fixed in the lower end of a pair of levers 58 pivoted at 59 on either side of the brackets 9. The upper end of these levers are connected to the ends of the envelop feed bar 20 by links 60, and a stop 74 limits the forward throw of the levers 51. See Fig. 3. From this it will be understood that as the arms 51 oscillate, the levers 58 are oscillated on their pivots 59 and the feed bar 20 is reciprocated in the slots 15.

The operation is as follows: A pile of envelops is placed on the support 19 and fingers 20 and the side guides 16 are adjusted along the slot 14 according to the width of the envelops, the flaps of the envelops being on the under side and pointing forwardly. If the parts are in the position shown in Fig. 3, the first movement, when the press starts, will cause the platen to move downward and rearward to coact with the form. Simultaneously the link 52 on the connecting rod 4 will move forwardly and carry the delivery grippers with it, thereby swinging the arm 51 forwardly, which in turn will cause the levers 58 to move the feed bar 20 rearwardly and the fingers 21 will enter between the flap and the body of the lowermost envelop and the latter will be pushed out from under the pile, as seen in Fig. 2, and onto the tapes 22, which convey the envelop rearwardly until the latter is arrested by the stops 36. It should be noted that when the single envelop leaves the pile and is pushed upon the tapes, these latter are elevated about as shown in Fig. 1, where the parts are shown in the position just before the single envelop drops on the tapes. By this arrangement, due to the coaction of the platen rollers 35 and the arms 33, the envelop passes in a straight plane from under the pile and onto the tapes. This insures a sure feed and prevents buckling or miscarriage of the envelop. During the next revolution of the press the platen moves upward and when it has reached its forward position, the stops 36 will be raised by the coaction of the platen locking cam 45 and the roll 44 as before described, and the envelop is dropped on the platen, passes down with the latter, is printed, and as the platen moves up, the delivery grippers pass rearwardly and seize the printed envelop, before the next fresh one leaves the tapes. The parts are so timed to the action of the platen locking cam, that the stops 36 are not raised before the delivery grippers have seized and removed the printed envelop. But as the platen remains in its forward position but a few seconds, this exchange of envelops thereon takes place so quickly, that it may be said, that the printed envelop has hardly left the platen before the edge of the fresh one falls thereon. In practice, however, the parts are adjusted to a nicety, so that this operation takes place without causing any trouble.

The above is thought to clearly set forth the construction and operation of my envelop manipulating device, and it should be noted, that it does not require any changes in the construction of the press, but that my

device is practically a complete unit, which can be attached quickly to the press and only need to be connected up. The manner in which the envelop is handled, that is, fed toward the platen and removed therefrom in the opposite direction possesses certain advantages, inasmuch as the operator does not have to walk around the machine in order to inspect the printed envelop, as these are delivered practically at the same point, at which they are fed, only lower.

This device may of course be used on other types of presses, and changes to this end and for other cause may be made within the scope of the invention and claims.

What is claimed is:

1. The combination of a platen press having a movable platen, a movable form member, a platen locking cam, an automatic envelop manipulating mechanism comprising an automatic envelop feeding mechanism, an automatic delivery mechanism, means for operating the said two mechanisms by the movement of the said form member, grippers carried by the said delivery mechanism, means for closing the said grippers by contact with the said platen, means for oscillating the envelop feeding mechanism by the said platen, means for driving the said feeding mechanism and means carried by the latter and operated by the said platen locking cam for arresting the travel of the envelop over the said feeding mechanism at a given point.

2. The combination of a movable platen, an envelop separating mechanism, a feeding mechanism interposed between the latter and the said platen, movable members coöperating with the said platen for raising and lowering the said feeding mechanism and delivery grippers mounted to slide upon the said movable members for removing the printed envelop from the said platen when the said feeding mechanism is lowered.

3. The combination of a movable platen, an envelop separating mechanism, a conveying mechanism interposed between the separating mechanism and the said platen for conveying the separated envelop to the latter, a delivery mechanism for removing the printed envelop from the platen and pivoted levers coacting with the platen for supporting the said conveying and the said delivery mechanisms.

4. The combination of a movable platen, a movable form member, envelop separating means, a delivery mechanism, levers pivoted intermediate their ends for operating the said separating means, pivoted levers for operating the said delivery mechanism and means for oscillating all of the said levers in unison and in opposite directions by the said form member.

5. The combination of a movable platen, envelop separating means, envelop feeding means, mechanism for arresting the movement of the separated envelop in the said feeding means while the impression is being taken, means for delivering the printed envelop and mechanism for releasing the unprinted envelop from the said feeding means substantially at the same time the said delivering means remove the printed envelop.

6. The combination of a movable platen, means for separating and feeding a single envelop to the same, means for delivering a printed envelop substantially simultaneously with the feeding of the next envelop to the said platen and movable members resting by gravity on the platen for supporting the said envelop feeding and delivering means.

7. The combination of a platen, envelop separating means, conveying means for conveying a single envelop to the platen, means for arresting the movement of the envelop before it reaches the platen, envelop delivery grippers for removing the printed envelop from said platen, means for releasing the said single envelop substantially at the same time the printed envelop is removed from the platen and supporting means common to the said conveying means and the said delivery grippers.

8. The combination of a platen, envelop separating means, conveying means for conveying a single envelop to the platen, means for arresting the movement of the envelop before it reaches the platen, envelop delivery grippers for removing the printed envelop from said platen, means for releasing the said single envelop substantially at the same time the printed envelop is removed from the platen and supporting means common to the said conveying means and the said delivery grippers, and means for operating the latter on the said supporting means.

9. The combination of a platen, envelop conveying means, delivery grippers, movable members in frictional contact with the said platen and operated thereby for supporting both the said conveying means and the said delivery grippers, opening means for the latter adjustably secured to the said movable members and means for reciprocating the said delivery grippers on the said movable members and in periodical contact with the said opening means.

10. The combination of an envelop feeding mechanism an envelop delivery mechanism, members for supporting both of the aforesaid mechanisms, opening means for the said delivery mechanism carried by the said members and devices for reciprocating the said delivery mechanism on the said members and in periodical contact with the said opening means.

11. The combination of envelop separating and feeding mechanisms, delivery grippers, movable members for supporting the

latter and the said feeding mechanism, levers for reciprocating said delivery grippers on the said movable members and other movable members actuated by the said levers for operating the said separating mechanism.

12. The combination of envelop separating means, a conveying mechanism, delivery grippers, means for operating the latter, movable members for supporting both the said conveying mechanism and the said delivery grippers, and other members actuated by the said delivery gripper operating means for operating the said separating means at a level above that of the operation of the said delivery grippers.

13. The combination of fixed supports, envelop separating means carried thereby, delivery grippers, supporting means for the latter pivoted on the said fixed supports, levers also pivoted to the said supports for operating the said separating means and means for actuating the said operating levers and for reciprocating the said delivery grippers.

14. The combination of side frames, envelop separating means supported thereby, delivery grippers, levers pivoted intermediate their ends on the said frames for operating the said separating means, oscillating levers for operating the said delivery grippers and for actuating the said first levers and yielding means for interconnecting the said two sets of levers.

15. The combination of a platen, an envelop separating mechanism, a conveying mechanism, delivery grippers, levers for supporting both the said conveying mechanism and the said delivery grippers, the said levers also operating the said conveying mechanism to convey an envelop to the platen and for oscillating the said delivery grippers to remove an envelop from the platen, means for operating the said separating mechanism and devices for actuating said means and for operating the said delivery grippers.

16. The combination of a platen, mechanisms for separating and conveying an envelop thereto, a platen locking cam, connections operated by said cam for timing the said envelop, means operated by the platen for lowering the envelop to the platen, delivery grippers carried by the said means, connections for operating the said delivery grippers upon the said means carrying the same and for actuating the said separating mechanism.

17. The combination of a platen, a form member, an envelop separating mechanism, delivery grippers, pivoted levers operated by the said platen for oscillating the said delivery grippers to remove an envelop from the platen, connections for reciprocating the delivery grippers on the said levers, means for operating said connections by the said form member and other oscillating levers actuated by the said first connections for actuating the said separating mechanism.

Signed at Newark in the county of Essex and State of New Jersey this 19th day of March A. D. 1908.

LEWIS E. MORRISON.

Witnesses:
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M. M. RIEMANN.