

G. J. ALBRECHT & S. L. LONG.

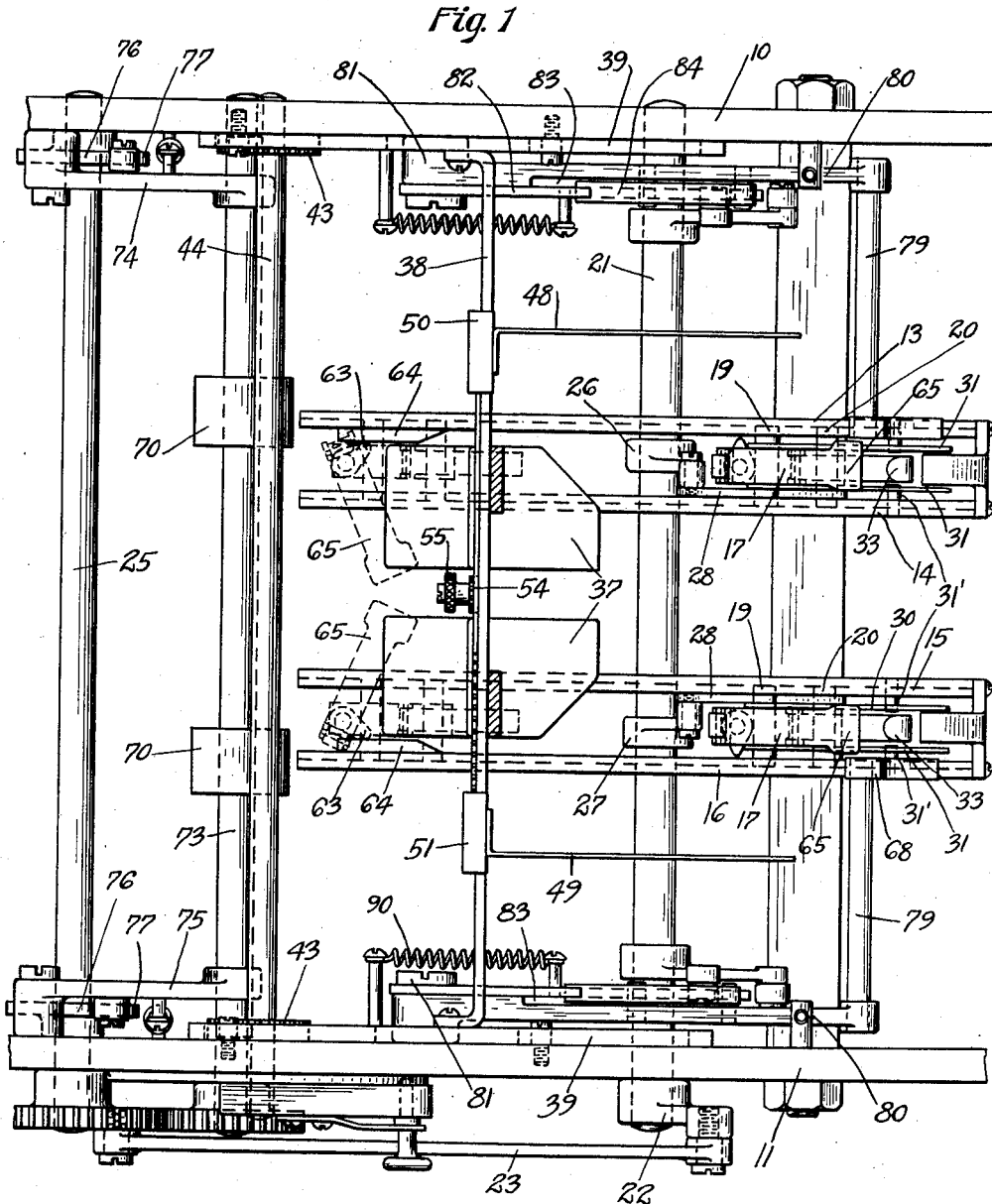
AUTOMATIC SELECTING AND FEEDING DEVICE FOR CARDS, ENVELOPS, OR THE LIKE.

APPLICATION FILED MAY 16, 1912.

1,093,593.

Patented Apr. 21, 1914.

4 SHEETS—SHEET 1.



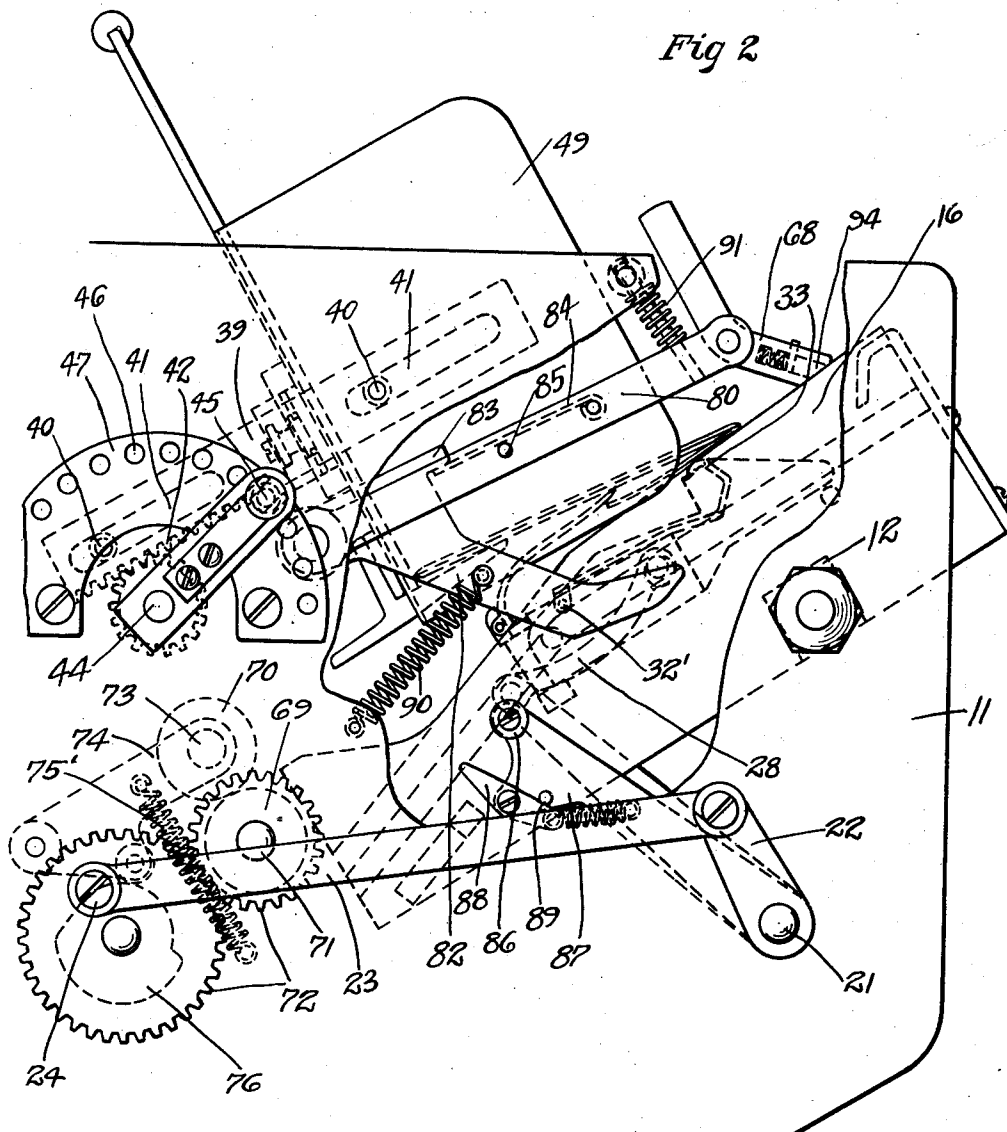
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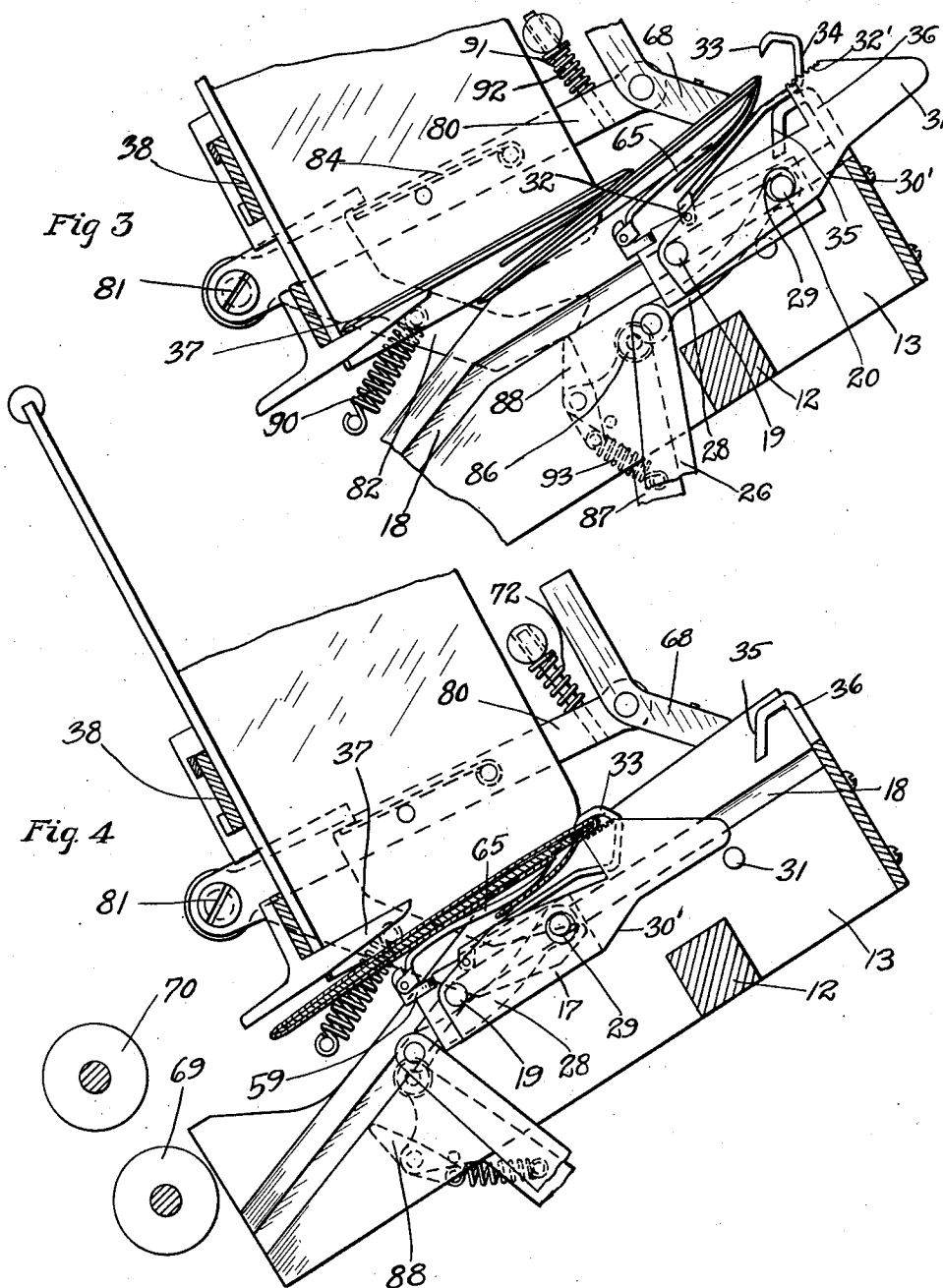
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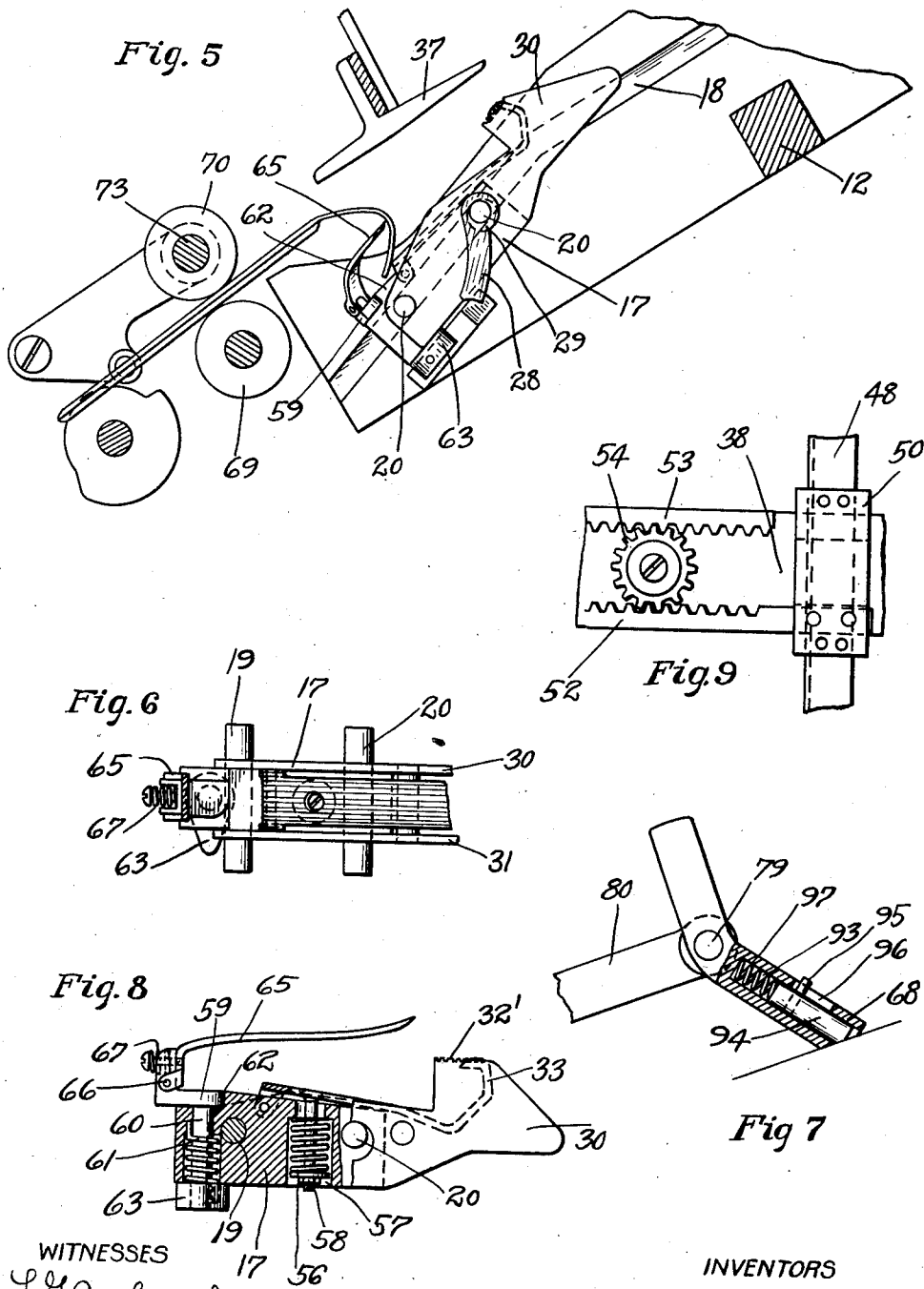
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UNITED STATES PATENT OFFICE.

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AUTOMATIC SELECTING AND FEEDING DEVICE FOR CARDS, ENVELOPS, OR THE LIKE.

1,093,593.

Specification of Letters Patent.

Patented Apr. 21, 1914.

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To all whom it may concern:

Be it known that we, GUIDO J. ALBRECHT and SIDNEY L. LONG, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Selecting and Feeding Devices for Cards, Envelops, or the like, of which the following is a specification.

The invention relates to an automatic selecting and feeding device for cards, envelopes, or the like, and has in view particularly the provision of such a device which is capable of selecting from a stack or pile and delivering singly and in timed succession loaded or filled envelopes.

The invention consists in certain novel features and combinations of elements for accomplishing the above results in a compact, convenient, and efficient machine.

In the drawings,—Figure 1 is a plan view of the invention. Fig. 2 is a side elevation with some parts broken away. Figs. 3, 4, and 5, are longitudinal sections showing the selecting mechanism in three different positions. Figs. 6 to 9, inclusive, illustrate various details.

The various elements of the selecting mechanism are mounted upon side members 10 and 11 which may be supported in any desired way. A cross bar 12 square in cross section is set into the plates 10 and 11 and forms a support for two pairs of bars 13 and 14 and 15 and 16, respectively, the members of said pairs being held in parallel relation, and each pair forming a guideway for a reciprocating head 17. Each of the bars 13 and 14, 15 and 16, has on the respective interiors thereof a cam groove 18, shown in Figs. 4, 5, and 6, and indicated in dotted lines in Fig. 1. Each of the heads 17 has extending therethrough two pins 19 and 20, the ends of which project into the aforesaid cam grooves, thereby supporting the heads 17 between the bars 13, 14, or 15, 16, respectively, and causing them to follow between said bars in a path defined by the cam grooves. A rock shaft 21 is journaled in the frame of the machine having an arm 22 connected by link 23 with a crank 24 on a driven shaft 25. Arms 26 and 27 on said rock shaft are pivotally connected by means of curved links 28 with

the heads 17 to pins 20. Each of the heads 17 comprises a pair of parallel jaw-like plates 30 and 31 having toothed upper surfaces 32' as best shown in Fig. 8, and pivoted at 32 to the heads 17 so as to ride between said plates is a hook-like member 33 having a cam face 34 adapted to engage a similarly disposed cam face 35 on an abutment 36 disposed between the plates 13, 14 or 15, 16, adjacent the upper ends thereof, the said abutment being formed to permit the plates 30, 31 on the heads 17 to pass on each side thereof. The plates 30 and 31 are each formed with a cam surface 30' adapted, in the travel of heads 17, to engage pins 31' secured between plates 13, 14 and 15, 16, respectively. The plates 30, 31 are pivoted at the pins 19 to the heads 17 and the pins 20 extend through enlarged apertures 29 in the plates 30, 31 so that when the cam surfaces 30' engage the pins 31', the plates are rocked on their pivots to bring the surfaces 32' above the upper surfaces of the plates 13, 14 or 15, 16. The hooks 33 are normally held in their lowered position by means of springs 56 housed in an aperture 57 in heads 17 and acting upon the members 33 through a pin 58 connected with said members, and are caused to rise by the coöperation of cam faces 34 and 35 above the plane of the faces 32' at each outer reciprocation of heads 17, the hooked arms 33 thus being moved differentially on the members 17 while the said members are being moved.

The envelopes are held in a stack with their flaps down engaging the upper surfaces of bars 13, 14 and 15, 16 with the flap edges and having the other edges supported by lips 37 secured to a cross-bar 38 extending between frame members 10, 11, there being an opening between the forward portion of said lips 37 and the aforesaid bars through which the card or envelop may be discharged transversely of its length. The bar 38 is directly secured to slides 39 which are held to frame members 10 and 11 by means of screws 40 extending through slots 41, said bars having formed thereon racks 42 engaged by pinions 43 on a shaft 44 which is operated by a crank arm 45 provided with spring means for locking the same in apertures 46 in a half circle 47 for

holding the bar 38 in different positions relative to abutments 36 for envelopes of different widths. The ends of the envelopes are sustained by side plates 48 and 49 secured to blocks 50 and 51 slidable on the cross bar 38. The block 48 is provided with a toothed rack 52 and the block 51 with a toothed rack 53 between which operates a pinion 54 controlled by a thumb screw 55, the above described means providing adjustments for accommodating envelopes or cards of any size or shape.

Upon each of the heads 17 is a block 59 upon a shaft 60 journaled in a relatively vertical position in the heads 17, a spring 61 operating to normally hold said block in a fixed position contacting with a shoulder 62 on the head 17. Upon each shaft 60 below its head 17 is secured a cam arm 63, engagement of said cam arms 63 with cams 64 on plates 13 and 16, respectively, operating to rock the blocks 59 so as to turn toward one another fingers 65 pivoted at 66 to each of the blocks 59 and normally held in a fixed position relatively thereto by means of a spring 67, all as best shown in Figs. 6 and 8.

With the envelopes in position in the stack between end guides 48 and 49, the flap edge resting upon the plates 13, 14 and 15, 16, when the heads 17 are reciprocated up the guideway, the fingers 65 will enter beneath the flap of the lowermost envelop as indicated in Fig. 2. Further movement of the heads 17 will carry the envelopes with fingers 53 below escapement dogs 68 resting upon the edges of bars 13 and 16 and which will later be more fully described, while at the same time the cam face 35 on abutment 36 will have raised hook 33, the parts being relatively positioned as shown in Fig. 3. At the moment of return reciprocation, the fingers 65 are caused to clamp the envelop in the position it then occupies until hook 33 has passed over the exposed flap edge of said envelop and gripped the said edge between each of hooks 33 and the cooperating roughened faces 32' of plates 30 and 31, after which continued movement of head 17 will carry the envelop below the plates 37 toward discharging position as indicated in Fig. 4. This discharge is effected to pairs of feed rollers 69 and 70, rollers 69 being on a shaft 71 positively driven through gearing 72 from shaft 25, while rollers 70 are freely rotatable on a shaft 73 carried by arms 74, 75 pivoted to frame members 10 and 11 and held to cause the rollers to contact with rollers 69 by means of springs 75', cams 76 on the shaft 25 acting through rollers 77 on said arms 74 and 75 to lift rollers 70 so as to separate them from rollers 69 at the proper point in the cycle of operations to receive the closed edge of the envelop between said rollers 69 and 70. Still further

movement backward of the heads 17 will bring the cam arms 63 into engagement with the cams 64, swinging the fingers 65 into the position shown in dotted lines in Fig. 1 and in which all of the parts are in the position shown in Fig. 5, the roller 70 having returned to contact with rollers 69 so that the envelop is being positively fed by said rollers and the flap 78 is pulled, as indicated, over the fingers 65 which positively and certainly straightens out the flap without in any way interfering with the position of the envelop. The roller 70 is brought into engagement with the envelop between rollers 69 and 70 just prior to the beginning of return reciprocation of heads 17, and the action of the rollers is such that the gripped edge of the envelop is withdrawn from beneath the hook 33 by the movement in opposite direction of the envelop itself and the hook on the heads 17.

The fingers 68 are mounted upon rods 79 extending toward the center of the machine from arms 80 pivoted at 81 to the side frame members 10 and 11. On the pivot 81 outside of arms 80 are arms 82 having a flange portion 83 overlying a part of arm 80 and the end of a spring 84 secured to the side of arm 80 and supported by a stud 85. The arms 82 depend into the path of rollers 86 on arms 87 secured on rock shaft 21. On the arms 87 is also a trip pawl 88 held fixed in one direction by a pin 89. When the arm 87 is rocked forward the roller 86 thereon engages the depending arm 82 rocking the same upward against the force of a strong spring 90 and permitting the envelop passing beneath fingers 68 to lift the arms 80 against the pressure of the light springs 91 encircling pins 92 on arms 80 and withdraw the fingers 68 from engagement with the tops of plates 13 and 16. This is done as the envelop is being moved forward into the position shown in Fig. 3, the pawls 88 engaging the under sides of arms 82 and holding said arms in raised position while the heads 17 are moving in a forward direction to bring the selected envelop into the position shown in Fig. 3. The moment the heads start to return the movement of arm 87, which is concurrent with the movement of arm 26, swings pawl 88 against the force of spring 93 and allows spring 90 to draw arm 82 downwardly and cause the same to force the fingers 68 downwardly so as to cause the same to clamp the envelop between the guide bars 13 and 16 and said fingers 68 until the hook 33 has left the abutment 36 and been drawn down over the exposed edge of the envelop so as to clamp the same upon the roughened surfaces 32' of plates 30 and 31, thus insuring certain engagement of the hook without possibility of displacement of the envelop while the fingers 65 are being partially withdrawn from beneath the flap.

The fingers 68 are formed with a bore 93 within which moves a catch 94 having a pin 95 thereon operating in a slot 96 in the wall of said finger, the catches 94 being forced downwardly by means of a spring 97 compressed between the end of said catch and the bottom wall of the bore 93. This catch 94, therefore, will always be forced down into engagement with the tops of plate 13 or 16 so as to check forward movement of a second envelop which might have frictionally been pulled along in connection with the selected envelop fed by the fingers 65. After the hook 33 has gripped the free edge of the selected envelop, the rollers 86 on the arms 87 are again brought into contact with arms 82, with the result that the said arms are swung upwardly and the fingers 68 are released from the force of springs 90 while the selected envelop is drawn from beneath the same. The arms 87 are again dropped as indicated in Fig. 4 just after the envelop has been fed from beneath said fingers, and remaining down until just before the selecting fingers 65 in return reciprocation have again brought an envelop into proximity to the fingers 68.

We claim:

1. In a machine for operating upon loaded envelopes a magazine provided with a discharge opening, a member oscillating in proximity to said opening and having means for engaging and pushing said envelopes singly and successively first into position to pass through and then in reverse direction through said opening at each complete oscillation of said member, and means for temporarily clamping the positioned envelop while change of engagement takes place from reverse movement of the oscillating member.

2. In a machine for operating upon envelopes a magazine for holding the envelopes in a stack provided with a discharge opening, means for discharging the envelopes transversely through said opening singly and successively, means movable therewith for first moving said envelopes partly out of the stack so that one edge may extend free of the stack and be engaged by the discharging means and the other edge will extend out of said opening, and means for temporarily clamping the moved envelop until the discharging means is caused to engage said free edge.

3. In a machine for operating upon envelopes a magazine for holding the envelopes in a stack provided with a discharge opening, means for engaging an edge of and discharging the envelopes transversely through said opening singly and successively, means movable therewith for first moving said envelopes partly out of the stack so that one edge may be engaged by the discharging means and the other edge will extend out

of said opening, and means for causing the discharging means to grip the engaged edge of the envelop.

4. In a machine for operating upon envelopes a magazine for holding the envelopes in a stack provided with a discharge opening, means for discharging the envelopes transversely through said opening singly and successively, means movable therewith for first moving said envelopes partly out of the stack so that one edge may be engaged by the discharging means and the other edge will extend out of said opening, and means for gripping the moved envelop to hold the same in fixed position until the discharging means has gripped the same.

5. A feeding device comprising means for holding articles in a stack, means for moving the articles singly and successively so that an edge thereof extends free of the stack, a hook normally out of the plane of movement of said article, means to move the hook to cause the same to engage the free edge and then to push the moved article from the stack, and means to temporarily clamp the article after initial movement thereof and until the hook has engaged the same.

6. A feeding device comprising means for holding articles in a stack, means for moving the articles singly and successively so that an edge thereof extends free of the stack, a moving member, a hooked arm carried thereby, means to move the hooked arm differentially on said member while the same is being moved so that the hook will be caused to engage over said free edge, and means for temporarily clamping the moved article during such differential movement of the hooked arm until the hook has effected such engagement.

7. A feeding device comprising means for holding articles in a stack, means for moving the articles singly and successively so that an edge thereof extends free of the stack, a member, a hooked arm carried thereby, means to move the member beneath the articles so that the hook on the arm extends beyond the said free edge, and means to move the hooked arm differentially on said member while the same is being moved so that the hook will be caused to engage over said free edge and clamp the same upon said moving member.

8. A feeding device comprising means for holding articles in a stack, means for moving the articles singly and successively so that an edge thereof extends free of the stack, a moving member comprising parallel plates, a hooked arm pivoted to the moving member so as to be relatively movable between said plates, and means to move the hooked arm differentially on said member while the same is being moved to bring the hook above the plates and cause the same to

engage over said free edge and clamp it to the plates.

9. A feeding device comprising means for holding articles in a stack, means for moving the articles singly and successively so that an edge thereof extends free of the stack, a moving member comprising parallel plates, a hooked arm pivoted to the moving member so as to be relatively movable between said plates, and means to temporarily clamp the article after initial movement in fixed position until the free edge thereof is gripped between said hook and plates.

10. A feeding device comprising means for holding articles in a stack, said means including parallel plates forming a guideway, means for moving the articles singly and successively along said plates so that an edge thereof extends free of the stack, a member movable between the plates, a hooked arm carried thereby, and means to move the hooked arm differentially on said member while the same is being moved so that the hook will be caused to engage over said free edge and clamp the envelop to the member.

11. A feeding device comprising means for holding articles in a stack, said means including parallel plates forming a guideway, means for moving the articles singly and successively along said plates so that an edge thereof extends free of the stack, a member movable between the plates having a pair of separated engaging portions, a hooked arm pivoted on the member and positioned between the said engaging portions, and means to move the hooked arm differentially on said member while the same is being moved so that the hook will be caused to move out from between the supporting plates and engaged over the free edge and clamping the same to said engaging portions.

12. A feeding device comprising means for holding articles in a stack including a pair of parallel plates forming a guideway, means for moving articles singly and successively so that an edge thereof extends free of the stack, a member movable between the plates having a pair of engaging devices relatively movable thereon, a hooked arm between said engaging devices, means to move the engaging devices relatively to the member, and means to move the hooked arm differentially with respect to said member and the engaging devices so that the engaging devices will be brought above the guiding plane of the plates and the hooked member will be caused to engage over the free edge and clamp the same to the engaging devices.

13. A feeding device comprising means for holding articles in a stack including a pair of parallel plates forming a guideway, means for moving articles singly and suc-

cessively so that an edge thereof extends free of the stack, a member movable between the plates having a pair of engaging devices relatively movable thereon, a hooked arm between said engaging devices, means to move the engaging devices relatively to the member, a cam abutment between the plates on either side of which the engaging members travel for cooperating with said hook to lift the same from between the plates and engaging members, and means to retract the hook and cause the same to clamp the said free edge to the engaging members.

14. A feeding device comprising means for holding articles in a stack including a pair of parallel plates forming a guideway, said plates having facing cam grooves on the insides thereof, a head reciprocating between the plates in said cam grooves, and differentially movable members carried by the head for first engaging and moving the articles singly and successively so that an edge thereof extends free of the stack and thereafter during reverse movement engaging and clamping said free edge and removing the article from the stack.

15. A feeding device for loaded envelopes comprising means for holding the envelopes in a stack with folded flaps down, said means including a pair of plates forming a guide and support for the flap edge of said envelopes, a head reciprocating between said plates, a finger carried by said head for engagement beneath the flap to move the lowermost envelop so that an edge thereof extends free of the stack, differentially movable engaging devices carried by the head, and means to move said devices as the head is moved to cause the same to engage and grip the free edge and discharge the envelop from the stack.

16. A feeding device for loaded envelopes comprising means for holding the envelopes in a stack with folded flaps down, said means including a pair of plates forming a guide and support for the flap edge of said envelopes, a head reciprocating between said plates, a pair of fingers carried by said head and normally pointed in the direction of movement thereof to engage beneath the flap and move the lowermost envelop so that an edge thereof extends free of the stack, means carried by the head thereafter to move the envelop into discharging position, and means for swinging said fingers in a plane substantially parallel to the plane of the envelop at the end of discharging movement of the head.

17. In a machine for operating upon envelopes, a reciprocating head for selecting and discharging envelopes from a stack, a pair of rock shafts journaled in said head transversely to the line of movement thereof, fingers carried by said rock shafts, means to hold the rock shafts so that said fingers

point normally in the direction of movement of the head, and means to rock said shafts at a determined point in the movement of the head to swing the fingers toward one another.

18. In a machine for operating upon envelopes, a reciprocating head for selecting and discharging envelopes from a stack, a pair of rock shafts journaled in said head transversely to the line of movement thereof, fingers carried by said rock shafts, means to hold the rock shafts so that said fingers point normally in the direction of movement of the head, arms on the shafts and cams engageable with said arms at a determined point in the movement of the head to swing said fingers toward one another.

19. A feeding device comprising means for holding articles in a stack including a pair of guideways, a pair of fingers mounted for pivotal movement relative to said guideways, arms engaging said fingers and spring-held to hold the fingers in firm contact with the guideways, means for moving the articles singly and successively to and beneath said fingers, and members engageable with said arm for releasing the force applied to the fingers when the article reaches the same.

20. A feeding device comprising means for holding articles in a stack including a pair of guideways, a pair of fingers mounted for pivotal movement relative to said guideways, arms engaging said fingers and spring-held to hold the fingers in firm contact with the guideways, means for moving the articles singly and successively to and beneath said fingers, and members movable with said article moving means for engaging said arms to release the pressure applied to the fingers when the article reaches the same.

21. A feeding device comprising means for holding articles in a stack including a pair of guideways, a pair of fingers mounted for pivotal movement relative to said guideways, arms engaging said fingers and spring-held to hold the fingers in firm contact with the guideways, a reciprocating member having means thereon for first moving the articles singly and successively to and beneath said fingers and thereafter discharging the article in opposite direction, rollers movable with the reciprocating member to engage the arms and release the pressure from the fingers before the article reaches the same, independent means for holding the arms in releasing position until the end of forward reciprocation and for releasing

the arms to permit the fingers to clamp the envelop at the beginning of backward reciprocation.

22. A feeding device comprising means for holding articles in a stack including a pair of guideways, a pair of fingers mounted for pivotal movement relative to said guideways, arms engaging said fingers and spring-held to hold the fingers in firm contact with the guideways, a reciprocating member having means thereon for first moving the articles singly and successively to and beneath said fingers and thereafter discharging the article in opposite direction, rollers movable with the reciprocating member to engage the arms and release the pressure from the fingers before the article reaches the same, and swinging pawls moving with the head and engaging said arms to hold them in releasing position during forward reciprocation of the head and acting to release said arms and permit the envelopes to be clamped beneath the fingers at the beginning of return reciprocation.

23. A feeding device comprising means for holding articles in a stack including a pair of guideways, a pair of fingers, means for holding the fingers in firm contact with the guideways, means for moving the articles singly and successively along the guideways and beneath the fingers, and means for releasing said fingers from said holding means to permit the article to pass beneath the same and thereafter for permitting the holding means to cause the fingers to grip the article against the guideways.

24. A machine for operating upon loaded envelopes comprising means for holding the envelopes in a stack with their folded flaps down, an intermittently operative discharging device, means including a hook for engaging over the flap edge and a pair of fingers operative beneath the flap of the lowermost envelop for presenting the envelopes to the discharging device, and means for swinging said fingers transversely into the line of discharging action so that the flaps are drawn over the same and straightened.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

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F. A. WHITELEY.