

Oct. 20, 1936.

E. P. DONNELLAN

2,058,005

MECHANISM FOR ASSEMBLING AND INSERTING ENCLOSURES IN ENVELOPES

Filed Jan. 16, 1935

9 Sheets-Sheet 1

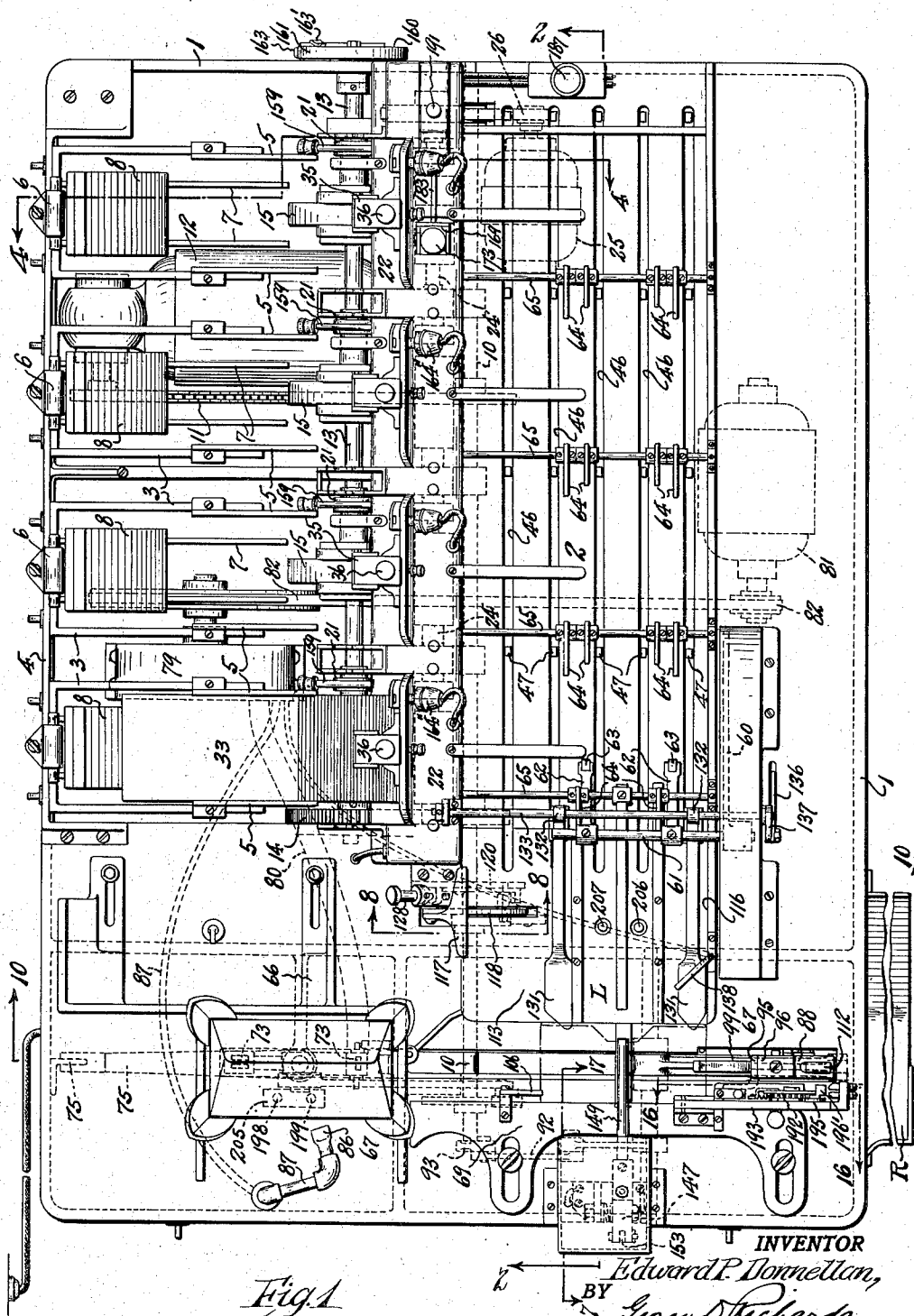


Fig. 1

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9 Sheets-Sheet 2

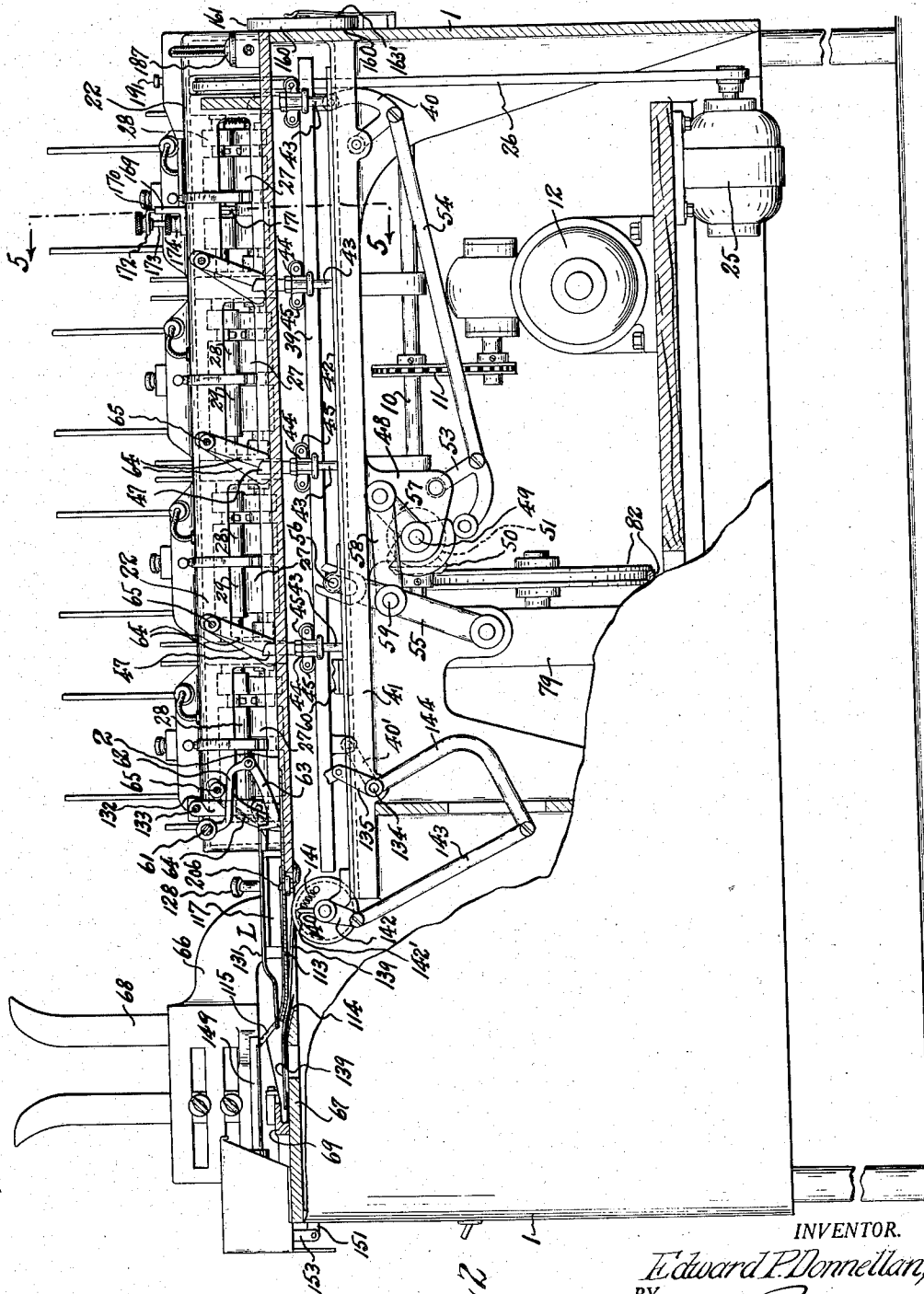


Fig. 2

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9 Sheets-Sheet 3

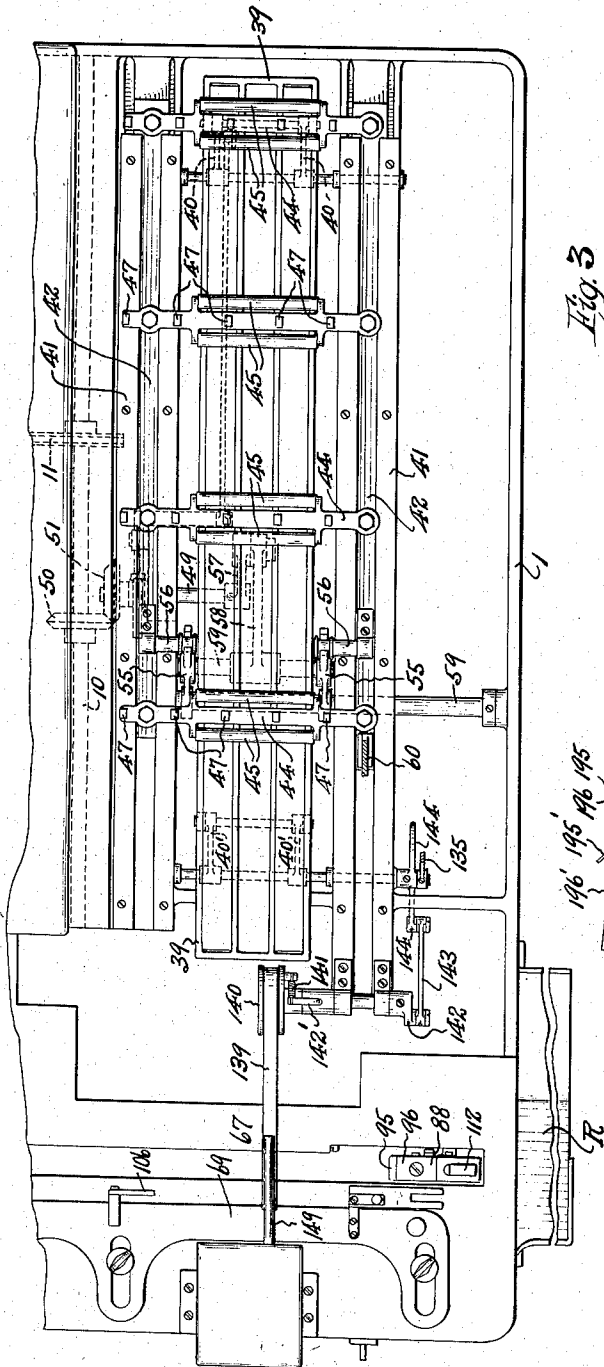


Fig. 3

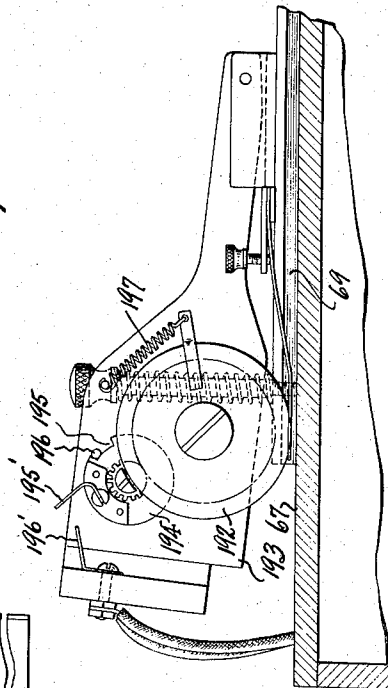


Fig. 16

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9 Sheets-Sheet 4

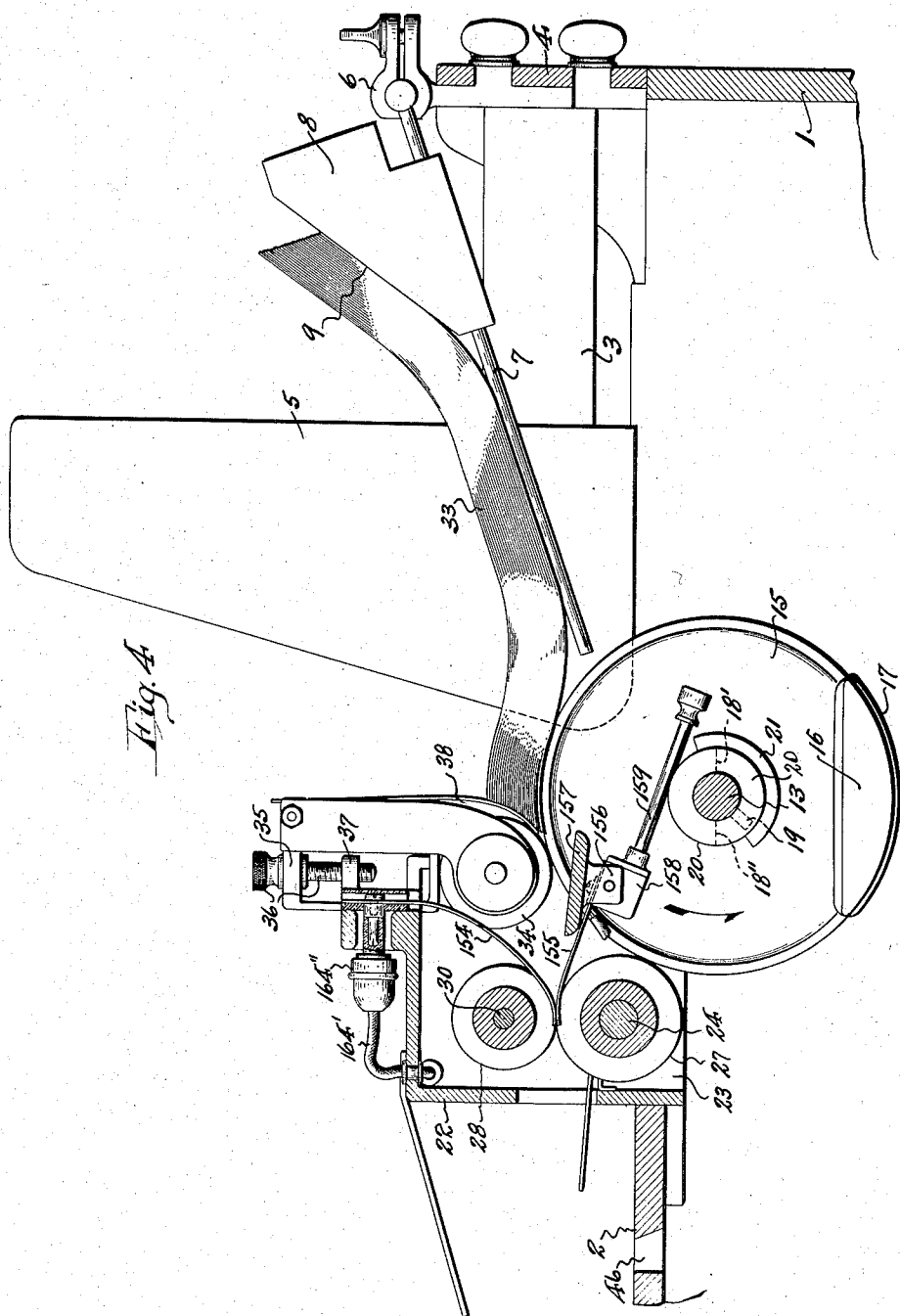


Fig. 4

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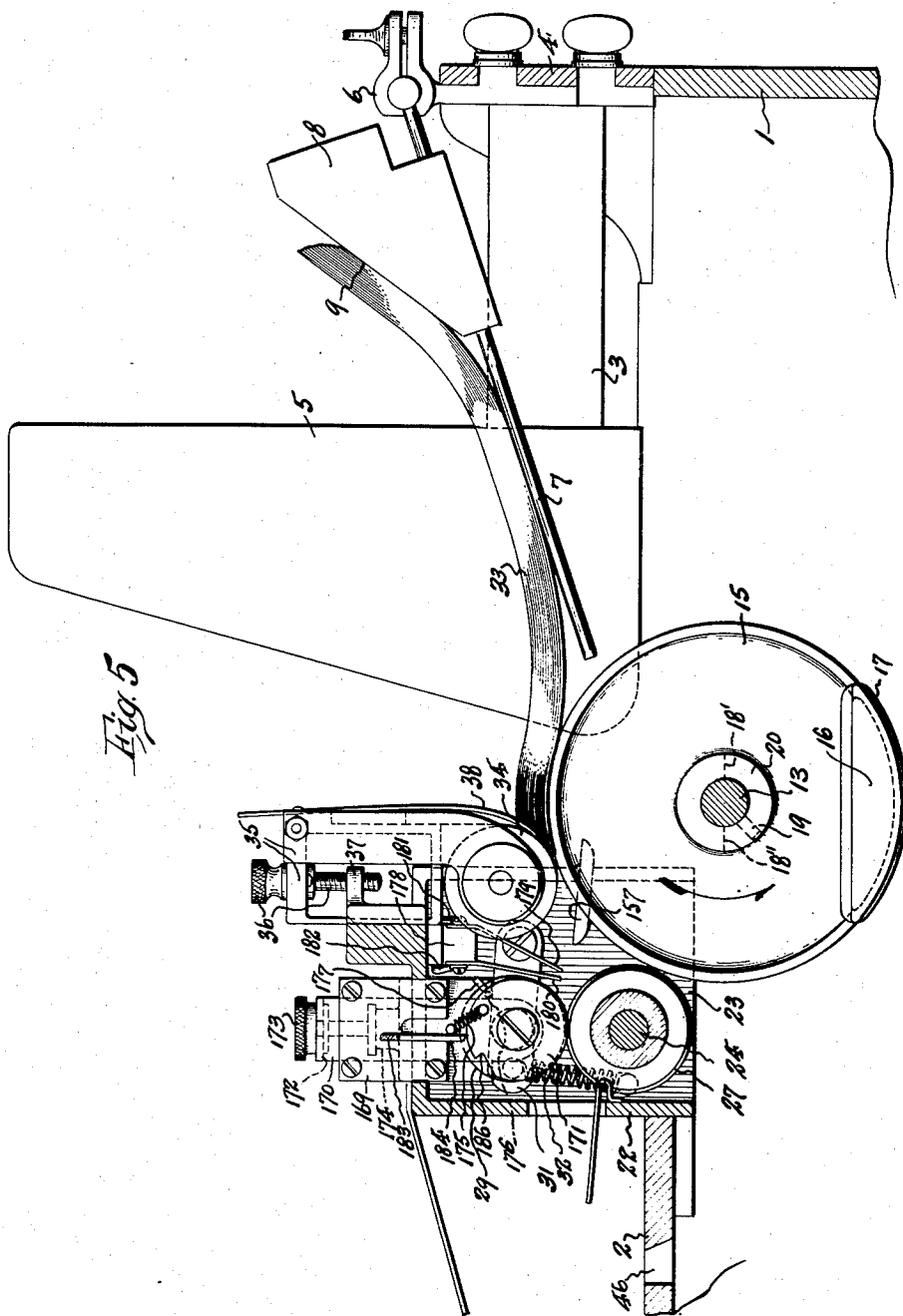
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9 Sheets-Sheet 5



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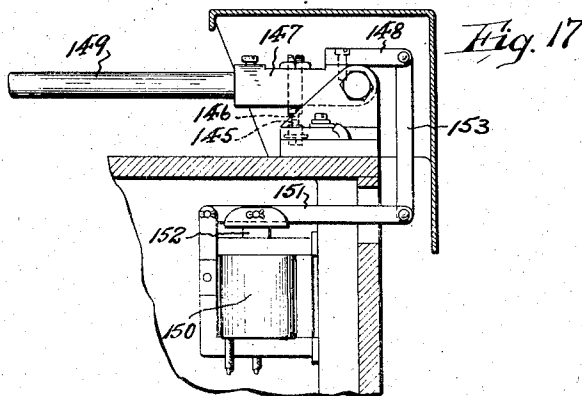
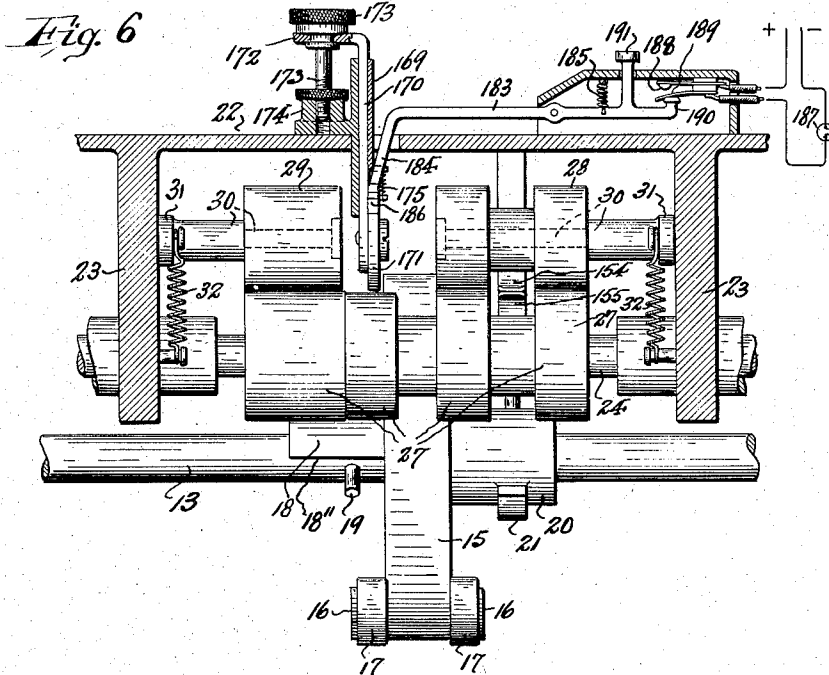
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9 Sheets-Sheet 6



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9 Sheets-Sheet 7

Fig. 8

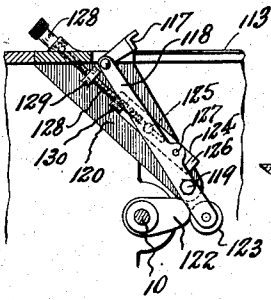


Fig. 9

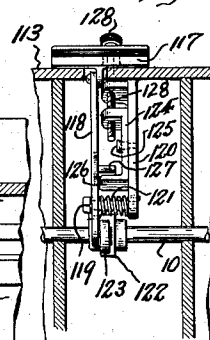
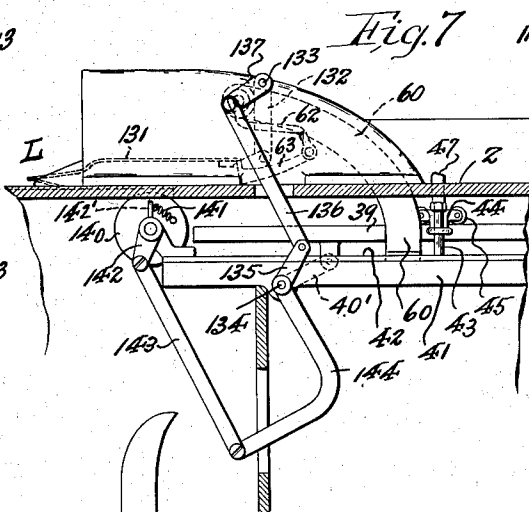


Fig. 7



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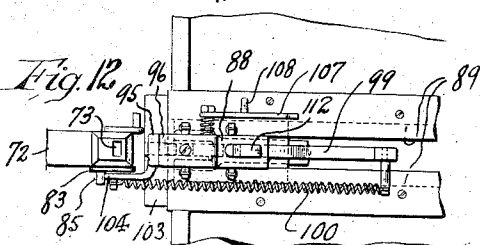
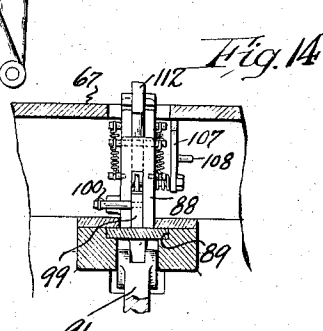
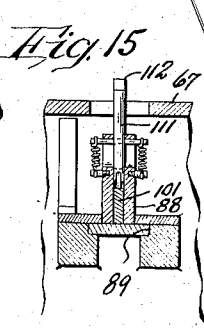
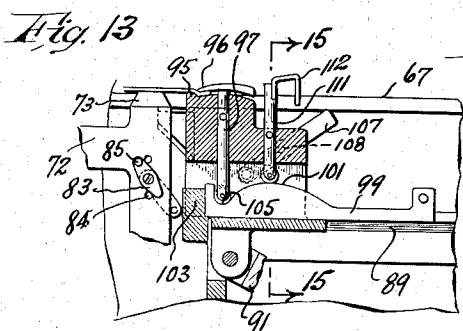
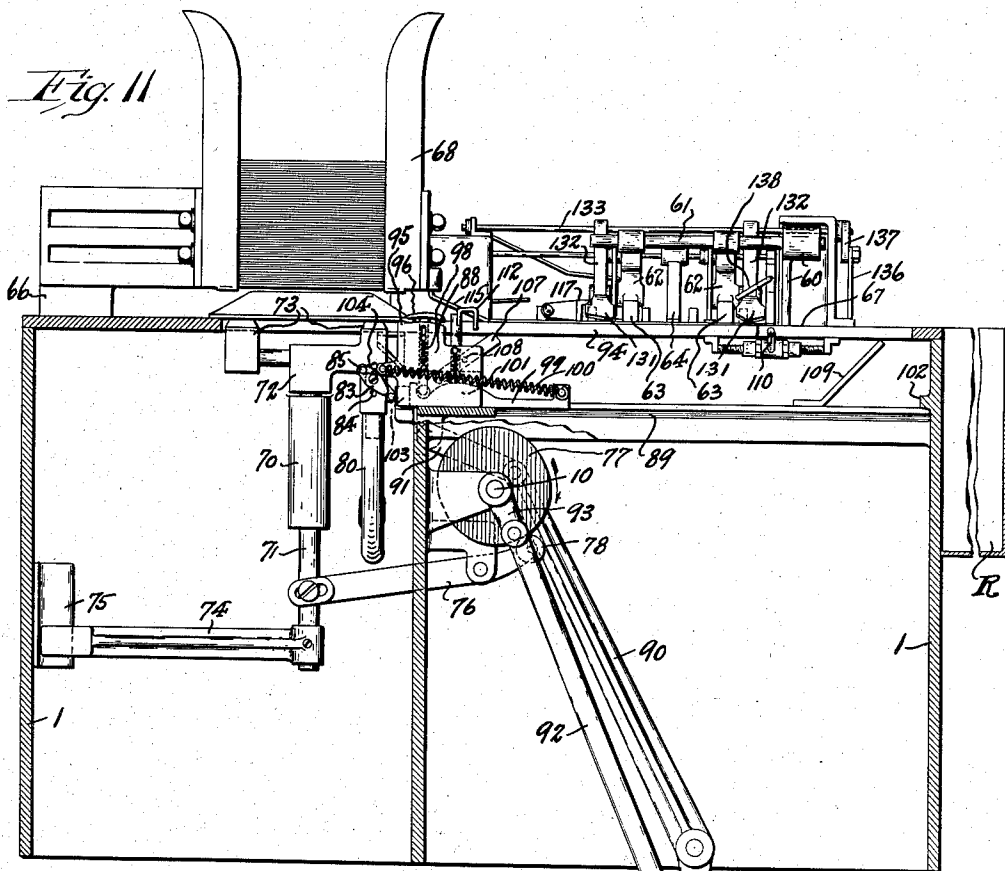
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9 Sheets-Sheet 8



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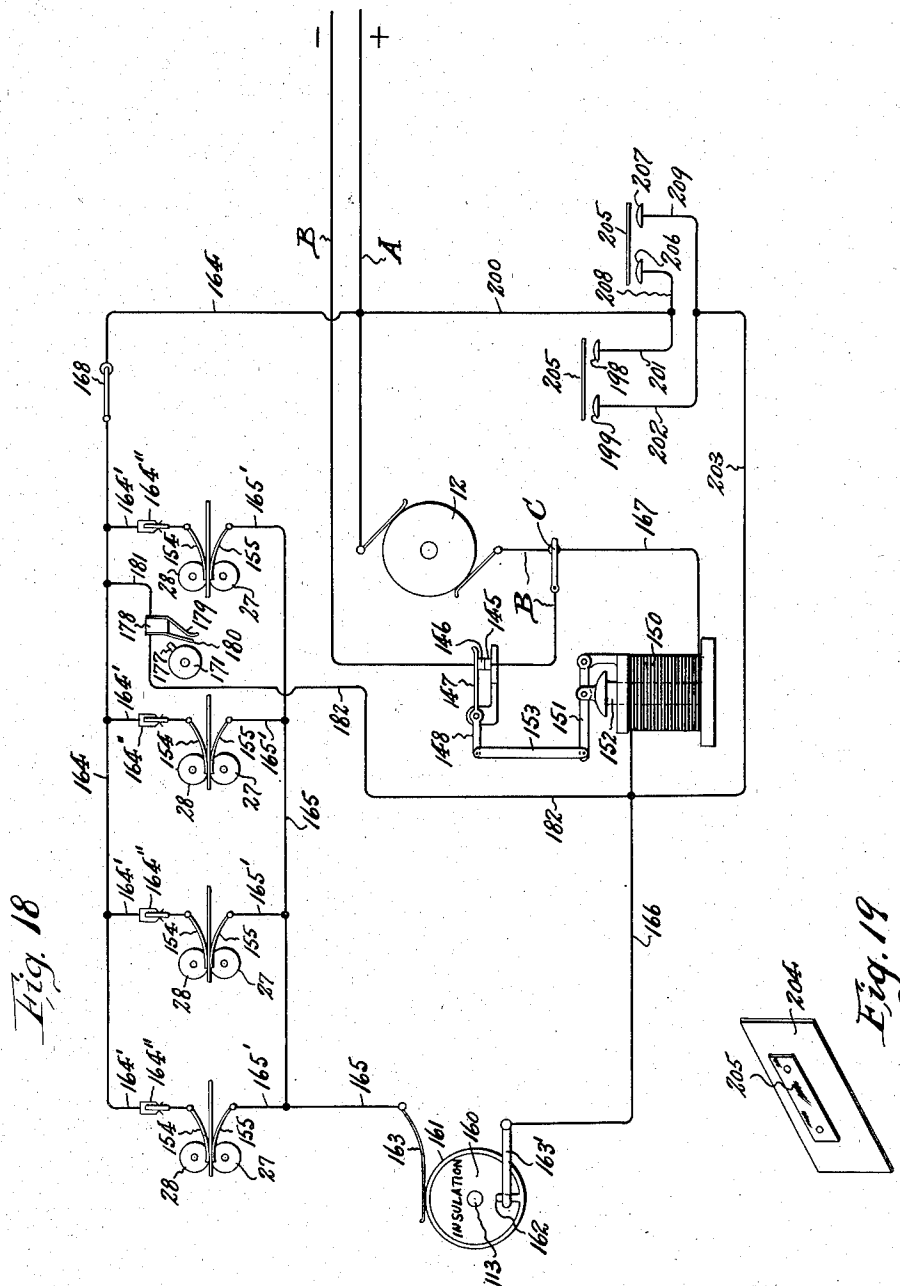
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9 Sheets-Sheet 9



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UNITED STATES PATENT OFFICE

2,058,005

MECHANISM FOR ASSEMBLING AND INSERTING ENCLOSURES IN ENVELOPES

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Application January 16, 1935, Serial No. 2,045

11 Claims. (Cl. 93-6)

This invention relates to improvements in automatic mechanism for assembling material from one or more sources of supply and thereupon inserting the same into envelopes.

5 This invention has for its main object to generally improve the various mechanisms making up a machine for the purposes described, whereby in the performance of its functions, the same is under efficient control against errors, while
10 being rapid and efficient in operation.

With this general object in view, more specific objects are to improve the delivery magazines and feed of material therefrom for assembly and insertion in envelopes; to provide efficient and
15 reliable automatic stop means adapted to arrest operation of the machine in the event of delivery from one or more of the magazines of excess material; to provide additional automatic stop means for stopping the machine in the event of
20 failure of delivery of material from any magazine; to provide means for stopping the machine after a predetermined quantity of material has been delivered, assembled and inserted in envelopes; to provide additional improved means for
25 stopping the machine in the event an envelope containing excess material is discharged from the machine; and to provide means for stopping the machine when envelopes are exhausted, and for otherwise automatically controlling the machine.

30 A further object of the invention is to provide a novel electric drive and control for the machine, the novel circuit of which includes the various automatic stop means above mentioned.

35 Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the invention, and will be comprehended in the appended claims.

40 An illustrative embodiment of this invention is shown in the accompanying drawings, in which:—

Fig. 1 is a plan view of the novel assembling and inserting machine according to this invention; Fig. 2 is a vertical longitudinal section
45 through the machine, taken on line 2—2 in Fig. 1, Fig. 3 is a fragmentary horizontal section, showing the assembling mechanism of the machine; Fig. 4 is a fragmentary transverse section through a material magazine and delivery mechanism associated therewith, said section being
50 taken on line 4—4 in Fig. 1, and being drawn on an enlarged scale; Fig. 5 is another fragmentary transverse section through a material magazine and delivery mechanism associated there-

with, said section being taken on line 5—5 in Fig. 2, and also being drawn on an enlarged scale; Fig. 6 is a fragmentary transverse vertical section through a delivery mechanism associated with a material magazine; Fig. 7 is a fragmentary longitudinal section, taken on line 8—8 in Fig. 1, further illustrating means for delivering assembled insertions from the loading station platform into the envelope; Fig. 8 is a fragmentary view of means for aligning together assembled insertions, preparatory to delivery thereof into an envelope, and Fig. 9 shows the same as viewed from right to left in Fig. 8; Fig. 10 is a transverse vertical section, taken on line 10—10 in Fig. 1, showing more especially the envelope feeding and delivery means, and Fig. 11 is a similar view showing operative positions of this mechanism preparatory to delivering an envelope withdrawn from the magazine to the loading station; Fig. 12 is a fragmentary plan view of envelope gripping and conveying means, Fig. 13 is a vertical sectional view of the same, Fig. 14 is a rear end elevation thereof, and Fig. 15 is a vertical transverse section thereof, taken on line 15—15 in Fig. 13; Fig. 16 is a fragmentary enlarged detail sectional view of a stop means actuated by envelopes containing excess material, this view being taken on line 16—16 in Fig. 1; Fig. 17 is a fragmentary enlarged sectional view of the solenoid actuated power circuit make and break switch means of the machine, the same being taken on line 17—17 in Fig. 1; Fig. 18 is a circuit diagram of the novel electric power and control circuits of the machine; and Fig. 19 is a perspective view of insertable control circuit bridging contact means used for certain stopping purposes.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

40 The mechanism making up the machine is mounted upon supporting frame-work 1, a portion 2 of which provides a material gathering runway platform. Arranged along the inward side of the runway platform 2 are a series of material holding magazines together with delivery mechanism therefor adapted to transfer from the magazines to the runway platform the items of the material to be assembled together.

The material holding magazines may be of any suitable make up or design operative to support stacks of material for withdrawal and delivery therefrom. Illustrative of one form of such magazine, as shown in the drawings, each such magazine may comprise U-shaped bracket frame 55

3 suitably secured to a stationary longitudinal upstanding flange 4 carried by the framework 1. Adjustable on the arms of the bracket frame 3 are side plates 5. Secured by clamp-element 6 in connection with the frame-work flange 4 are supporting rods 7 which are downwardly inclined between the arms of the bracket frame 3 and their side plates 5 toward the inward discharge end of the magazine. Slidably adjustable on said supporting rods 7 is a backing block 8, the same being preferably provided with an inclined face 9 at its forward side.

Suitably journaled in connection with the frame-work 1 is a longitudinal drive shaft 10, which is driven through suitable transmission means, including a chain and sprocket drive 11, from an electric power motor 12. Also suitably journaled in connection with the frame-work 1 is a longitudinal jack-shaft 13 which lies adjacent to and somewhat below the inward discharge ends of the material holding magazines, this shaft being driven from said drive shaft 10 through gearing 14. This jack-shaft is operative to actuate ejector wheels 15, which are respectively cooperative with the respective material holding magazines. Each ejector wheel is loosely mounted on the jack-shaft, and is provided in connection with a portion of its periphery with segmental shoulders 16, preferably off-set respectively from opposite sides of the wheel. Upon these shoulders are suitably supported facings 17 of frictional material, such e. g. as rubber, operative arcuate portions of which are disposed parallel to and somewhat outwardly offset from the wheel circumference. The wheel at one side is provided with a hub extension 18, a portion of which is cut away to provide for lost motion between the sides 18' and 18'' thereof and a projecting drive pin 19 with which the jack-shaft is provided. At its opposite side, the wheel is provided with a hub extension 20 having a circumferential cam portion 21, the purpose of which will be subsequently disclosed.

Mounted on the frame-work 1 to extend longitudinally between the discharge ends of the material holding magazines and the runway platform 2 is a housing 22 provided with spaced bearing partitions 23. Journaled in said bearing partitions 23 is a driven shaft 24, the same being preferably continuously driven from a separate electric power motor 25 by a belt 26 or other suitable transmission means. Material delivery roll mechanisms for each magazine are actuated by said shaft 24. Each delivery roll mechanism comprises a driven bottom roll 27 fixed upon said shaft 24 to lie intermediate a cooperating ejector wheel 15 and the runway platform 2. Disposed above and cooperating with the driven bottom roll 27 are a pair of idler rolls arranged in yieldable contact therewith, one of said idler rolls, as 28, engaging the right hand end portion of the driven roll 27, and the other idler roll, as 29, engaging the left hand end portion of the latter (see Fig. 6). Each idler roll is supported upon the spindle arm 30 (upon which it rotates) of a lever arm 31 pivotally mounted in connection with a bearing partition 23 for vertical swinging movement controlled by a pull spring 32, whereby the idler rolls are yieldably urged toward and in operative engagement with the driven roll 27.

Sheet or like material 33, successively to be delivered from the magazines onto the runway platform 2, is stacked in the magazines so as to be supported between the side plates 5 and upon the downwardly sloping supporting rods 7, with the

leading ends of the stacked material overlying the ejector wheel 15, whereby the latter at proper times may act upon the bottom sheet or item of such stack. A suitable stripper means is provided to cooperate with the ejector wheel 15 for holding back the stack of material 33 in such manner that said wheel is effective in operation only upon the bottom sheet or item of the stack. Illustrative of one serviceable form of such means, a hold-back or stripper roll 34, preferably rubber faced, is supported by a vertically adjustable carrier frame 35, the latter being slidably related to the housing 22 subject to vertical adjustment by means of an adjusting screw 36 rotatably carried thereby and threaded through a stationary nut-lug 37 connected with said housing 22. Such mounting of the hold-back or stripper roll 34 permits of adjusting the hold-back or stripper roll 34 in a fixed position relative to the periphery of the ejector wheel 15 so as to be spaced therefrom at a distance equivalent to the thickness of a single sheet or item to be withdrawn from the magazine. To further assist in holding back the main bulk of the stack of material a spring tongue 38 affixed to and dependent from the carrier frame 35 is provided to lie between the forward end of the stack and said hold-back or stripper roll 34.

The operation of the material delivery mechanisms, with respect to the devices thus far disclosed is as follows:

Rotation of the jack-shaft 13 carries the drive pin 19 into engagement with the side 18' of the hub extension 18 of ejector wheel 15, thereby rotating the latter in the direction of the arrow appearing in Fig. 4. Such rotation of the ejector wheel carries the frictional facings 17 thereof into engagement with the lowermost sheet or item of the material 33, and by frictional engagement thereof slides the same outwardly from the magazine and from beneath the remainder of the stacked material which is held back or stripped therefrom by the hold-back or stripper roll 34, the spacing of the latter relative to the ejector wheel allowing the bottom sheet or item to move outwardly beneath the same. The scope of influence of the frictional facings of the ejector wheel 15 is sufficient to carry the leading end of the outwardly moved sheet or item of material into engagement with the delivery rolls 27 and 28-29, whereby such leading end is engaged by the nip of the latter rolls and thereby propelled outwardly for discharge upon the runway platform 2. The peripheral speed of the delivery rolls is considerably higher than that of the ejector wheel 15, and consequently the lost motion between the jack-shaft 13 and said ejector wheel 15 is provided, to the end that the latter will not exert a drag or check upon the outward movement of the sheet or item once it is engaged by the delivery rolls. As a result of this lost motion, the ejector wheel 15 is free to accelerate its movement under the pull of the material propelled by the delivery rolls, by reason of the fact that the hub shoulder 18' of the ejector wheel, under accelerated movement of said wheel, may move onward away from the more slowly moving drive pin 19. By this arrangement no undue strain is exercised upon the delivered material with risk of tearing, mutilating or otherwise injuring the same.

Arranged beneath the runway platform 2 is a trackway plate 39 which is supported from the frame-work by pivoted lever members 40 and 40', whereby said trackway plate may be raised and

lowered by timed actuating mechanism to elevate material propulsion means to active propelling position and lower the same to inactive retracting position. The propulsion means comprises 5
channeled guides 41 extending longitudinally below and adjacent to opposite sides of the trackway plate 39, said guides 41 being suitably supported by the machine frame-work. Arranged for sliding reciprocable movement within said 10
channeled guides 41 are slide-bars 42. Secured to the slide-bars 42 are upstanding posts 43, and supported by laterally opposed pairs of these posts 43 are laterally disposed propulsion bars 44 having anti-friction rollers 45 which ride upon the trackway plate 39. Said propulsion bars 44 are vertically 15
slidable on their supporting posts, whereby the same will rise and fall in company with the timed vertical movements of the trackway plate 39. Carried by said propulsion bars 44, to project 20
upwardly therefrom through longitudinal slots 46 with which the runway platform 2 is provided, are propulsion fingers 47. Said propulsion bars 44 correspond in number to the number of material feeding magazines with which the machine is 25
equipped.

The means for raising and lowering the trackway plate 39 to bring the propulsion mechanism into active forward propelling position and then, upon completion of a propulsion stroke, to bring 30
said propulsion mechanism into inactive position while being retracted for a succeeding propulsion stroke, comprises a timed actuating means operated from the drive shaft 10. Suitably journaled in a bearing support 48 is a lateral shaft 49 driven 35
by miter gears 50-51 from said drive shaft 10. Fixed on said lateral shaft 49 is a cam 52 which actuates a bell-crank lever 53. This bell-crank lever 53 is in turn connected by a link 54 with the set of lever members 40 which effect the rise and 40
fall of said trackway plate 39 (see Figs. 2 and 3), in timed relation to the longitudinal reciprocations of the propulsion bars 44.

The means for producing the longitudinal reciprocations of the propulsion bars 44, comprises 45
oscillatable actuating levers 55 pivotally supported on the frame-work of the machine and having bifurcate free ends to engage drive pins 56 which are secured to the slide-bars 42. Said 50
actuating levers 55 are oscillated by a rotating crank-arm 57 fixed on and driven by said lateral shaft 49, said crank-arm being operatively connected by a link 58 which is pivoted to a cross arm 59 extending between the levers 55.

In the operation of the machine enclosures 55
from the different material magazines are simultaneously delivered upon the runway platform 2, whereupon the propulsion fingers 47, being raised to active propelling position by elevation of the trackway plate 39, are moved forward so that 60
successive enclosures are moved upon previously delivered enclosures, until an accumulated stack of all enclosures is deposited at the loading station L at the forward end of said runway platform, ready to be engaged by inserting means 65
whereby the accumulated stack of enclosure items is delivered into the interior of an opened envelope which has in the meantime been fed into a position to receive the same.

The propelling devices of the inserting means 70
comprise the following elements:—

Affixed to one of the slide-bars 42 is an upwardly and forwardly projecting carrier arm 60, to the free end of which is attached a transverse carrier rod 61 which is spaced above the runway 75
platform 2. Affixed to said carrier rod 61 are

spaced bracket arms 62 to the free ends of which are pivotally connected vertically yieldable pusher members 63, which incline downwardly and forwardly, so that their free ends ride upon the 5
surface of said runway platform. By this arrangement reciprocable motion is imparted to the pusher members 63 through the medium of the same slide bars 42 which reciprocate the material accumulating propulsion devices already 10
above described.

In order to prevent rearward displacement of the material as it is advanced and accumulated on the runway platform 2 preparatory to delivery into an envelope by the inserting means, detent 15
fingers 64 are provided at proper locations to hold the items of the accumulating material at the different stations to which the same are fed from the supply magazines, and also at the loading station L. Preferably these detent fingers 20
64 are pivotally connected with stationary transverse supporting rods 65, suitably held in place above the runway platform, so that the said detent fingers incline downwardly and forwardly therefrom, with their free ends yieldably engaging 25
the surface of said runway platform, whereby the same will lift or yield to the passage of forwardly propelled material thereunder, but will engage and hold against backward movement the material which has been advanced beyond the 30
same.

The means for delivering and opening an envelope, ready to receive insertion of the accumulated material thereinto, will now be described. Suitably supported from the frame-work of the machine by a bracket 66, so as to dispose the 35
same above a platform 67 with which the frame-work is provided at the discharge end of the machine, and which provides an envelope runway, is an envelope storage magazine 68. Adjustably mounted on the platform 67 is an abutment plate 40
69, which backs up and holds the envelope against yielding to the insertion of material therein, and which also borders the path of movement of the envelope, while the same is being delivered from the magazine into a position operatively opposed 45
to the loading station L. Pneumatic means is provided for successively withdrawing envelopes from the bottom of the magazine 68, subject to engagement by means for delivering the same in front of the loading station L. Supported by a 50
fixed guide 70, for vertical reciprocable motion beneath the magazine 68, is a slide-piece 71, upon the upper end of which is affixed a suction head 72 having suction nozzles 73. Said slide-piece 71, and the suction head 72 carried thereby, is held 55
against rotary displacement by an arm 74, the bifurcated free end of which embraces and rides on a vertical guide rib 75 which is suitably affixed to the framework of the machine. The means for producing properly timed vertical re- 60
ciprocations of said suction head 72 comprises a pivoted oscillatable lever 76, one arm of which is pivotally engaged with the slide-piece 71, and the other or opposite arms of which is engaged by an actuating cam 77, which is fixed upon and driven 65
by the drive shaft 10. Preferably the free end of the cam engaged arm of said lever 76 is provided with an anti-friction roller 78 with which the operative periphery of said cam 77 engages. Pneumatic suction is applied to the suction head 70
72 and its nozzles 73 by means of an air pump 79, the air intake side of which is connected with said suction head 72 through a flexible hose or conduit 80. Said air pump 79 is preferably directly and continuously driven from its own elec- 75

tric power motor 81 through a belt and pulley or other suitable transmission 82. In operation the suction head 72 is raised so as to contact with its suction nozzles 73 the bottom or lowermost envelope of the stack thereof contained in the magazine 68, in which position a pivoted valve plate 83, carried by the suction head, is disposed to cover or close suction break vents 84 formed in the latter, so that suction effect is operative at the suction nozzles 73 to cause adherence of said bottom or lowermost envelope thereto. Said valve plate 83 is provided with a laterally projecting striker pin 85 which, upon upward movement of the suction head, is engaged by a fixed cam device 85' which operates to move the valve plate 83 to the described vent closing position, by the time said suction nozzles contact with the envelope to be removed from the magazine. The envelope having been thus engaged, and adhered by suction to the suction nozzles 73, continued operation of the suction head actuating means lowers said suction head, thereby withdrawing an engaged envelope downwardly and outwardly from the magazine 68, and thereupon lowering the same to the level of the platform 67 ready to be engaged by delivery means operative to carry the same into position opposite the loading station L, and ready to receive insertion of the accumulated material desired to be inserted thereinto. Preparatory to engagement of the envelope by such delivery means, pneumatic means are provided for swinging outwardly to envelope opening position the envelope closure flap. This means comprises an air discharge nozzle 86, which is connected to the air discharge side of the pump 79 by suitable piping or conduit 87. As the envelope is drawn down and freed from the magazine 68, it is disposed in the path of a jet of air discharged by said nozzle 86, so that the blast of such jet strikes beneath the envelope flap so as to raise and then fold back the same to open position.

The means for delivering the envelope which has been removed from the magazine 68 by the pneumatic extracting means above described, comprises a gripper carriage 88, which is reciprocable in a transverse guideway means 89 disposed beneath the platform 67. This carriage 88 is actuated, in timed relation to the envelope extracting means and to the material insertion mechanism, by a pivoted bell-crank lever 90, one arm of which is operatively coupled to the carriage by a connecting link 91, and the other arm of which is connected through a link 92 to a rotatable crank-arm 93 which is actuated by the drive shaft 10. The upper portion of said carriage 88 extends upwardly through a slot or way 94 provided in the platform 67 so as to ride therein, and so as to present an inner upper portion of the carriage substantially at the level of the platform 67, which portion serves as the fixed jaw 95 of a gripper mechanism. A vertically operative movable jaw 96 of the gripper mechanism overlies and cooperates with said fixed jaw 95. Said movable jaw is provided with a shank portion 97 vertically slidable in a way provided therefore in the carriage, and said movable jaw 96 is normally maintained in closed relation to and upon the fixed jaw 95 by a spring 98. A movable jaw actuating means is also supported by the carriage so as to be capable of horizontal longitudinal reciprocable movement in relation thereto. This actuating means comprises a slidable cam bar 99, yieldably held in a forwardly projected relation to the carriage by a pull spring 100. This

cam bar 99 is provided with a lift-cam portion 101 intermediate its ends, which is so related to the shank portion 97 of the movable gripper jaw 96 as to operatively engage the same. At the outer end of said guideway means 89 is a buffer lug 102 which, when the carriage is in retracted position, engages one end of the cam-bar 99 to thrust the same to its normally forwardly projected relation to the carriage. At the opposite or inner end of said guideway means 89 is another buffer lug 103 which, when the carriage is moved inwardly toward envelope gripping position, engages the opposite end of the cam-bar 99 to slide the same rearwardly for gripper jaw opening and closing effect as the carriage approaches and terminates its inward movement, as will presently be more fully explained. Projecting from the inner end of said carriage 88 is a fixed push-finger 104.

In the operation of the envelope delivery mechanism, as thus far described, as an envelope is extracted from the magazine 68 and positioned at the level of the platform 67, the carriage 88 is being moved inwardly toward the magazine by its timed actuating means. As the carriage approaches the end of this inward movement, the forward end of the cam-bar 99 is carried against the buffer lug 103 so that, as the carriage continues its inward movement, and accompanying movement of said cam-bar is arrested, the shank portion 97 of the movable jaw 96 will ride upwardly upon the lift-cam 101, thus lifting the gripper jaw 96 to opened relation to the fixed jaw 95. As the carriage completes its inward movement, the fixed jaw 95 is carried beneath the presented envelope while the upper jaw is carried over the latter, whereupon the shank portion 97 of said upper jaw moves down the forward side of the lift-cam 101 to engage in a notch or seat 105, thus lowering the upper jaw so as to grip the end of the envelope between the same and the lower fixed jaw, preparatory to retractive outward movement of the carriage. In the meantime, the push-finger 104, as advanced by the inwardly moving carriage, strikes the pivoted valve plate 83 of the suction head 72, so as to move the same to uncovering relation to the suction break vents 84, thus breaking the suction within the suction nozzles 73, and freeing the envelope therefrom ready for outward movement with the retracted carriage, whereby the envelope is carried to a position opposed to the loading station L, and ready to receive the accumulated material to be inserted therein. As the carriage approaches the end of its retractive or outward movement, the rearward end of the cam-bar 99, which is at this time projecting from the outer or rearward end of the carriage, is carried against the buffer lug 102 so that, as the carriage continues its outward movement, accompanying movement of the cam-bar is arrested, whereby the shank portion 97 of the movable gripper jaw 96 rides upwardly over the inner side of the lift-cam 101, thus opening the latter jaw to release the envelope at desired opposed position relative to the loading station. As the carriage completes its outward retractive movement, the shank-portion 97 of the movable gripping jaw 96 will ride down the outer side of the lift-cam 101, all the parts being thereupon returned to normal initial positions.

Pivotally supported from the abutment plate 69 is a downwardly and outwardly inclined envelope positioning detent finger or stop 106, beneath which a delivered envelope passes as it is moved

into position to receive insertions, and against which it can be disposed to assure its location in such position. Means are pivoted on the carriage 88 for engaging and moving a delivered envelope 88 for engaging and moving a delivered envelope 5 into stopped position against the detent finger or stop 106, as the carriage again moves inwardly for another envelope, and immediately prior to the insertion of accumulated material into the thus located deposited envelope. This means 10 comprises a normally upstanding pivoted push-finger 107 suitably but yieldably held in such upstanding position. When the carriage 88 is retracted to its outermost position, a pin 108 of this push-finger 107 is brought into engagement with 15 an inclined fixed cam means 109, whereby the same is upturned to its operative position. When the carriage 88, after having delivered one envelope, is again moved inwardly to engage a succeeding envelope for delivery, the upstanding push-finger 107 is carried into engagement with the 20 outer end of the delivered envelope so as to push the same back against the detent finger or stop 106, whereupon the push-finger 107 is immediately engaged by a pin 110 or other suitable abutment, so as to be down-turned to inactive position for movement beneath the plane of the platform 67 until the succeeding envelope is delivered, and the push-finger is again up-turned to active position on completion of the outward stroke 25 or movement of the carriage 88.

The carriage 88 is also provided with a vertically retractible ejector means, which prior to the outward movement of the carriage operative to deliver a succeeding envelope opposite the loading station L, is raised to its active position, so that the previously delivered envelope, which has in the meantime received its inserted content, may be engaged by the ejector means, and propelled outwardly away from the loading station 35 L for discharge into the receptacle R, wherein the filled envelopes are received and from which they are taken to be finally closed and sealed, either by suitable machine or hand operations. The ejector means, for purposes described, comprises 40 a vertically movable shank-piece 111, slidably mounted in a suitable way therefor at the rearward end portion of the carriage 88. Affixed to the upper end of this shank-piece 111 is a propelling member 112. When the carriage 88 is moved inward to grip a succeeding envelope, and the cam-bar 99 is moved rearward by abutment against buffer lug 103, the lift-cam portion 101 moves under the shank-piece 111, thereby raising the latter and thus projecting the propelling 45 member 112 above the surface of the platform 67. Now as the carriage moves outwardly to deliver a succeeding envelope to loading position, the upwardly projected propelling member 112 will engage the inner end of the previously delivered and filled envelope, and thereupon slide the same outwardly and away from the loading station and off the outer end of the platform 67 whereupon it drops into the receptacle R, while, at the same time, the succeeding envelope is delivered into 50 place opposite the loading station L. As the carriage 88 completes its outward movement, and the cam-bar 99 strikes the outer buffer lug 102, said cam-bar is forwardly moved relative to the carriage, thereby moving its lift cam portion 101 away from the shank-piece 111, so that the latter moves downwardly to normal initial position wherein the propelling member 112 is again retracted to a plane below the top of the platform 55 67, and so as to pass beneath the deposited suc-

ceeding envelope, when the carriage 88 again moves inwardly.

At the loading station, an accumulated material supporting plate 113 is provided, the same forming a continuation of the runway platform 5 2. Said supporting plate 113 is of relatively thin material, and its free end is preferably slightly upturned and spaced over a cutaway marginal portion of the platform 67 so as to provide an envelope flap receiving space 114 (see Fig. 2). 10 Extending between the inward side of said supporting plate 113 and the lower end of the envelope magazine 68 is a wire guide piece 115. It will be remembered that, as the envelope is extracted from the magazine 68 by the above-described pneumatic extracting means, the jet or blast of air from the nozzle 86 turns outwardly the flap of the extracted envelope to extended open position. When the envelope gripping and conveying means above described engages and 20 conveys the envelope outwardly to dispose the same opposite the loading station L, the open envelope flap will pass beneath the wire guide piece 115 so as to be guided thereby to pass beneath the free marginal portion of the supporting plate 113. 25

The means for preparing the envelope and the accumulated material preparatory to the insertion of the latter into the former comprises the following devices. Means is provided for aligning the superimposed items making up the accumulated material desired to be inserted in the envelope, whereby the superimposed items are properly registered together against a longitudinal guide-lip 116 which borders the outer side 35 of the runway platform 2 and the supporting plate extension 113 thereof. This means comprises a push-piece 117 arranged to move laterally across the supporting plate 113 from the inner side thereof to engage the inner ends of the accumulated material deposited on the latter and thereupon thrust the same outwardly into abutment with the guide-lip 116. This push-piece 117 is pivotally connected with the end of an upper arm of an actuating lever 118, which moves through a slot in the supporting plate 113 40 and which is in turn pivoted upon a fulcrum pin 119 carried by a depending supporting bracket 120, a spring means 121 being employed to induce the operative outwardly swinging stroke of the lever 118 and the push-piece 117 carried thereby. A rotatable cam 122 operated by the drive shaft 10 engages the lower arm of said lever 118 to retract the same and the push-piece to normal initial inactive position. Preferably the lower arm of said lever 118 is provided with an anti-friction roller 123 with which said cam engages. 45 Means are provided for regulating the operative stroke of the lever 118 and push-piece 117, which is also capable of rendering these parts entirely inactive should it be so desired. This means comprises an adjustable slotted stop-plate 124 slidable on a stud 125 carried by the bracket 120. The stop-plate 124 is provided at its lower end with a stop-projection 126 engageable by a stop-pin 127 carried by the upper arm of said lever 118. 50 The stop-plate 124 is adjusted longitudinally by an adjusting screw 128 mounted in a bearing 129, said screw having a threaded engagement with a nut-piece 130 with which the upper end of said stop-plate is provided. Downward adjustment of the stop-plate 124 spaces the stop-projection 126 from the stop-pin 127 at such regulated distance as will arrest movement of the lever 118 and push-piece 117 at the end of a desired predetermined extent of movement, according to the length of 55 60 65 70 75

material to be aligned. If the stop-plate 124 is adjusted upwardly far enough to abut the stop-projection 126 against the stop-pin 127 when the lever 118 and push-piece 117 is fully retracted, it will be obvious that when the lever 118 is released from the retracting high portion of the cam 122, the lever 118 will be restrained from any movement under the urge of the spring 121, and consequently the lever 118 and push-piece 117 will remain inactive. The above will be best understood from an inspection of Figs. 8 and 9 of the drawings.

Means is provided for holding open the mouth of the envelope preparatory to insertion of accumulated material thereinto. This means comprises a pair of lift-blades 131, preferably made of thin resilient metal, the rear ends of which are pivotally connected with the lower ends of lever arms 132 which are affixed to and dependent from a transverse rock-shaft 133 suitably supported above the runway platform 2. Connected with the rocking fulcrum shaft 134 which pivots the lever members 40' which oscillate upon rise and fall of the trackway plate 39, is a lever arm 135. This lever arm 135 is interconnected by a link 136 with a corresponding lever arm 137 affixed to the rock-shaft 133. In operation as the trackway plate rises, the rocking fulcrum shaft 134 imparts an upswinging motion to the lever arm 135 which is transmitted through the link 136 and lever arm 137 to the rock-shaft 133, thus swinging forward the lever arms 132, and thereby imparting an outward sliding motion to the lift-blades 131, thus causing the latter to enter the open mouth of the awaiting envelope adjacent to each end of the latter, and thus upwardly distending said envelope mouth. It will be understood that these operations are so timed as to occur between the time the envelope is positioned to receive insertions and the time of the actual advance of the accumulated material for insertion thereinto. In order to assure the proper entrance of the lift-blades into the envelope, an air nozzle 138, supplied from the pump 79, is provided and so located as to direct a jet or blast of air toward the deposited envelope mouth, thereby distending the latter sufficiently to assure unobstructed entrance of the lift blades thereinto. After the material is inserted a reversal of the above described operations occurs, whereby the lift blades 131 are retracted, preparatory to the discharge of the filled envelope.

It is often desirable to employ the so-called window envelopes, which possess an apertured front, covered by a ply or panel of transparent material glued to the inside face of such apertured front. This inner ply or panel may obstruct smooth and uncrumpled entrance of accumulated material into the envelope interior, and to avoid this, means is provided to guide the entering material over such ply or panel. This means comprises a flat strip of springy metal forming a guide tongue 139. This guide tongue 139 has one end portion affixed to a winding drum 140, and the latter is yieldably connected through the medium of a coupling spring 141 with the upper arm 142' of an oscillatable lever means 142 for actuating the drum. Timed oscillation of the lever means 142, through a link 143, which interconnects said lever means 142 with an actuating lever 144 affixed on and operated by said rocking fulcrum shaft 134 of the raising and lowering means of said trackway plate 39. After the envelope is positioned for the reception of inserted material and before the initiation of the insert-

ing movement, the drum 140 is rotated anti-clockwise, such rotation projecting forwardly and into the envelope the free end portion of said guide tongue 139, so that the same covers the transparent panel of the envelope in such manner as to guide the entering material smoothly thereover. If the guide tongue extremity should abut the closed bottom of the envelope, the spring 141 will permit yielding play between the thus obstructed tongue drum and actuating means therefor, so that no injury is done to the envelope by said entered guide tongue. The operation of this arrangement is so timed, that a reverse clockwise winding rotation is imparted to the drum 140 by the actuating means before the filled envelope is discharged and while the propulsion devices of the material accumulating means are being retracted, thereby withdrawing the guide tongue 139 from the envelope interior, and thus preventing the guide tongue from obstructing discharge movement of the filled envelope.

The general operation of the machine will be understood from the above description; it remains now to describe the various devices which serve to automatically stop the machine under various conditions so that proper accumulation of the desired material is assured without risk of missing items making up the collection; so that stopping of the machine occurs upon exhaustion of material from any given feed magazine; and so that stopping of the machine occurs after the filling of a predetermined number of envelopes has been accomplished. The mechanisms for these various operations will be understood from the following description and from an inspection of the wiring diagram showing the main power circuit and controls furnished by Fig. 18 of the drawings.

The electric power motor 12, which operates the main drive shaft 10, from which the envelope and material handling devices of the machine are actuated (excepting the continuously running delivery rolls serving the several material magazines), is served by a main power circuit leading from a source of electrical energy, said circuit comprising the positive or incoming line A and the negative or outgoing line B. One of said lines, as e. g. the outgoing line B includes a solenoid actuated main circuit make and break switch, the actuating solenoid of which functions, through various controlling shunt circuits and their circuit closing devices, to open the main circuit make and break switch, and thus interrupt the main power circuit to automatically stop the operation of the machine under various conditions. The main circuit make and break switch comprises a fixed contact 145 and a movable contact 146, the latter being carried on a pivoted arm 147. The pivoted arm 147 is provided with a lever extension 148 projecting from its pivoted end, and is further provided, at its opposite end, with a hand lever extension 149. Suitably mounted in operative relation to said main circuit make and break switch is the actuating solenoid 150, to the frame of which is pivotally connected a lever 151 to which the armature 152 of the solenoid is connected. Operatively interconnecting said lever 151 and the lever extension 148 of the pivoted main switch arm 147, is a link 153.

The automatic stopping of the machine, either by reason of exhaustion of material from any given magazine, or by reason of failure of delivery of an item thereof from any given magazine, comprises the following devices:—

Associated with each set of delivery rolls, which are cooperative with the respective magazines, are a pair of resilient contact blades 154 and 155, so arranged that their free end portions are disposed one above the other and normally converge upon and contact one with the other substantially in the plane of the nip of said delivery rolls, and preferably at or somewhat outwardly of the nip point thereof. The upper contact blade 154 is suitably affixed to the housing 22, but in insulated relation thereto. Pivotally mounted in connection with bearing knuckles 156 depending from the underside of a ledge piece 157, with which the housing 22 is provided and which lies behind the delivery rolls, is an oscillatable block 158 to which the lower contact blade 155 is affixed. Extending rearwardly from said block 158 is a lever arm 159 operatively engageable by the cam-portion 21 of the ejector wheel means 15. The contact blades 154—155, serving the several material magazines and their delivery rolls, are connected in parallel in a shunt or control circuit which includes and controls operation of the main circuit make and break switch actuating solenoid 150. In series with said contact blade sets is an auxiliary rotary timed make and break means. This auxiliary timed make and break means comprises a rotatable contact wheel which is affixed to and driven by the driven shaft 13 in timed relation to the operation of the ejector wheel means 15. This wheel preferably comprises a body of insulating material 160 having a peripheral electrically conductive contact rim 161 from which extends over a side face of the insulating body 160 a radial contact branch 162. Cooperative with said contact rim 161 is a contact brush 163. Cooperative with the side face of the insulative body 160 and the contact branch 162 associated therewith is a contact brush 163'. The shunt or control circuit in which the above described devices are included preferably comprises an ingoing line 164 connected with a source of electrical energy, as e. g. by connection with the incoming line A of the main circuit, and a parallel line 165 leading to the contact brush 163 of the timed make and break means, the circuit continuing from the other contact brush 163' through the outgoing line 166 to one pole of the solenoid 150, and then from the other pole of the latter on through the line 167, which is joined to the outgoing line B of the main circuit, preferably through a manually operable switch C. The contact blade sets 154—155 are connected in parallel between the lines 164 and 165. The contact blades 154 being connected by branches 164' to line 164, and the contact blades 155 being connected by branches 165' to the line 165. Preferably the respective branches 164' are respectively provided with push-plug disconnectors 164'', so that when the use of any given magazine and its material feeding mechanism is not needed and is therefore desired to be discontinued, separation of the push-plug disconnector thereof will discontinue the functioning of the corresponding set of contact-blades 154—155. If desired the control circuit may be provided with a manually operable switch 168.

The functioning of the above described control circuit means is as follows: As the ejector wheel means 15, which is driven by shaft 13, operates to move items from the magazines, the cams 21 will engage the lever arms 159, thereby upswinging the latter and consequently downswinging the contact blades 155, thus separating the latter from the blades 154 until the ejected

items are moved into the nip of the delivery rolls 27—28—29 and thereupon delivered outwardly onto the runway platform 2. By the time the items are engaged by the delivery rolls, the advancing movement of the ejector wheel means 15 has carried the cams 21 beyond the lever arms 159, which therefore drop back to normal position thus again raising the contact blades 155 in position to engage the contact blades 154. If an item is passing through the delivery rolls at this moment, however, the same will intervene between the contact blades 154—155 and will prevent the same from closing the control circuit at the moment when such circuit is otherwise momentarily closed by the meeting of the contact branch 162 with the contact brush 163' of the timed rotary make and break means; such meeting being timed by the rotation of the body 160 to take place just following the engagement of the item by the delivery rolls and immediately following the return of the contact blades 154—155 to engaging position. As a consequence of this the control circuit remains interrupted, and it will be obvious that so long as items are properly fed successively from all the magazines, there can occur no closing of the blade contacts simultaneously with the closing of the auxiliary rotary make and break contacts, and therefore the solenoid 150 is not energized to open the main circuit switch, and the machine will run continuously in the performance of its functions. If, however, the ejector wheel means 15 of any functioning magazine, fails to deliver an item to the delivery rolls serving such magazine, the release of the contact-blade 155 by its controlling cam 21 will permit such contact-blade 155 to make contact with the contact-blade 154, which contact will continue until the contact branch 162 is carried into engagement with the contact brush 163', whereupon the breaks in the control circuits are both bridged simultaneously, and energizing current is thereupon delivered through the solenoid 150. When the solenoid 150 is thus energized, its armature 152 is pulled downward, and this motion thereof is transmitted through the link and leverage connections to the movable contact 146 of the main circuit switch, whereby the latter is separated from the fixed contact 145 and said main circuit supplying the motor 12 with operating current is interrupted and the motor stops, thereby arresting further operation of the machine, until the fault in delivery of material from the inoperative magazine is cured, and the machine is again started by closing the main circuit switch, which is done by manually lifting the hand lever extension 149 of the movable contact carrying arm 147. The automatic stopping of the machine thus accomplished on failure of proper delivery of items from any one or more of the magazines, also occurs, through the same action above described, if such failure is due to exhaustion of material from any magazine.

The machine of this invention is frequently used for enclosing in envelopes dividend checks or other items of special value together with additional items, such as notices, receipt forms, proxies or the like. In connection with such use, it is of great importance to guard against accidental or inadvertent delivery by any single delivery impulse, of more than one of such valuable items. Additional means have therefore been devised for association with the magazine and delivery means therefor from which such valuable items are to be discharged. This means is shown in the present instance in connection with

only one magazine, but it will be obvious that the same could be provided in connection with more than one or even all of the magazines, if it should be so desired. As herein shown this means comprises a vertical guide bracket 169, which is affixed to the housing 22 in front of a selected material magazine, and in which is mounted, for vertical adjustment, a supporting plate 170 upon which is rotatably mounted a trip wheel 171 disposed in opposed relation to a portion of the driven bottom delivery roll 27 serving said selected magazine. Connected with the upper end of said supporting plate 170 is a lateral angular extension 172, to which is rotatably affixed an adjusting screw 173, the threaded shank of which engages a stationary nut-member 174; all whereby the supporting plate 170 may be raised or lowered relative to the delivery roll 27, so as to space the trip wheel from the latter a distance sufficient to give clearance for the passage of a single item ejected from the magazine, but insufficient to pass more than one such item at a time without actuating said trip wheel. Said trip-wheel is normally but yieldably held in a normal initial position by spring means 175, such position being determined by a stop-pin 176 with which a side of the trip-wheel is provided, and which is adapted to abut an edge of said supporting plate 170. Said trip wheel 171 is provided with trip pin 177 projecting radially from its periphery. Suitably mounted in connection with the housing 22, in back of said trip wheel 171, on an insulating block 178, are a pair of normally separated yieldable contact members 179 and 180. These contact members are suitably connected in a shunt circuit which also includes the main switch actuating solenoid 150. For example, such connection may be made by a lead 181 extending from said ingoing line 164, connected with the main circuit input line A, to the contact member 179, and by a line 182 leading from the contact member 180 to connect with the line 166 which supplies the solenoid field winding, the circuit being completed from the solenoid through the line 167, which is joined to the output main circuit line B, as already above described. In operation, when a single item is ejected from the magazine by the ejector wheel 15, and fed by the latter to the nip of the delivery rolls, such single item will be engaged and discharged by the latter through the clearance space between the bottom roll 27 and said trip wheel 171, without imparting any motion to the latter. If, however, two or more such items happen to be forwarded to the nip of the delivery rolls, the additional thickness of material will not clear the trip wheel, and consequently the periphery of the latter will be so engaged that rotative movement will be applied thereto. Such rotation of the trip-wheel 171 will carry its trip pin 177 into engagement with the contact member 180, whereby the latter is moved into circuit closing engagement with the contact member 179, thus delivering energizing current to the solenoid 150 so that the latter is caused to open the main circuit make and break switch 145—146, thus stopping the motor 12 and consequently arresting the operation of the machine. The activity of the machine being thus stopped, the operator may remove the excess items, and thereupon restart the machine by actuating the closing lever of the main circuit make and break switch. In order to prevent restarting of the machine until the operator has removed the excess items from the delivery rolls, a means is provided for locking the trip wheel 171 in actuating relation to the con-

tacts 179—180 so as to hold the solenoid 150 in main circuit switch opening condition, such means comprising a pivoted lock-lever 183, having a latch-piece 184 which rides on the periphery of the trip-wheel 171. Said lock-lever 183 and its latch-piece 184 is yieldably urged toward the trip-wheel 171 by spring means 185. Formed in the periphery of the trip-wheel 171 is a lock-notch 186, which, when the trip-wheel is turned to the position at which the contact members 179—180 are closed, is registered beneath the latch-piece 184 which drops thereinto thus holding the trip-wheel against retraction by its spring to normal contact member releasing position. If desired, a signal means may be provided adapted to be actuated by the locking movement of said lock-lever 183, whereby the machine attendant is notified that the machine is stopped by reason of the attempted accidental delivery of more than one item. This signal means comprises any suitable electrically actuated signal device, such e. g. as a signal lamp 187, the circuit of which is controlled by a pair of normally open contact elements 188 and 189, which are adapted to be moved together to circuit closing relation by a portion 190 of the lock-lever 183. The lock-lever 183 is provided with a finger-piece 191, whereby the same may be manually returned to normal initial position wherein the trip-wheel 171 is released from the restraint thereof.

An alternative to the means for guarding against issue of envelopes containing an excess of items, especially in cases where one or more of such items are of a valuable character, may comprise a means somewhat similar to that above described, but designed to be located in the path of discharge of the filled envelopes, subject to actuation by any filled envelope containing an excess of items over and above the normal assembly or aggregation thereof. One illustrative form of this alternative means is shown in Fig. 16 of the drawings, and comprises a trip-wheel 192 which is mounted on a supporting bracket 193 pivotally affixed to the abutment plate 69 which borders the platform 67, and vertically adjustable whereby said trip-wheel 192 may be disposed in spaced relation to said platform 67, over which the filled envelopes pass, so predetermined as to give clearance to filled envelopes of normal thickness, as the same are moved outwardly for discharge into the receptacle R. Said trip wheel 192 is geared to a rotatable disc 194 also carried by said bracket 193. Said disc 194 is provided with a stop notch 195 in its periphery adapted to cooperate with a stop pin 196 carried by the bracket 193. Said disc 194 carries a contact element 195' movable into engagement with a stationary contact element 196'. The trip-wheel 192 and disc 194 geared thereto are yieldably held in normal contact separating position by spring means 197. The contact elements 195' and 196' are electrically connected in a shunt circuit (not shown) which serves the actuating solenoid 150 for controlling the opening of the main circuit make and break switch, said circuit being substantially of the same character and relation to the other circuits as that above described in which the contact members 179—180 are connected. In operation, if a filled envelope is of abnormal thickness, due to insertion therein of excess material, then, as it is propelled outwardly for discharge into receptacle R, it will engage and rotate the trip-wheel 192, thus causing the contact elements 195'—196' to be engaged in circuit closing relation so as to deliver energizing cur-

rent to the solenoid 150, thereby opening the main circuit make and break switch and stopping the machine, as will be understood.

In the use of the machine, it is sometimes desirable to stop the operation of the machine when a predetermined number of envelopes have been filled, as e. g. a batch of filled envelopes intended for one postal destination. This may be accomplished in alternative ways. Either by providing means operative to stop the machine when a predetermined number of envelopes have been taken from the envelope magazine, or when a predetermined number of insertion assemblies have been delivered to the loading station L. The machine may be provided with means operative by either or both of these methods; the first method also being available for use in stopping the machine when a given supply of envelopes stacked in the envelope storage magazine 68 is exhausted. The means operative in connection with the envelope feeding mechanism comprises a pair of spaced apart stationary contact points 198 and 199 which are fixed in a common horizontal plane in connection with platform 67 beneath the envelope storage magazine 68. These contact points provide an open gap normally interrupting a shunt circuit including the main switch actuating solenoid 150; said circuit e. g. comprising an ingoing line 200 extending from the incoming line A of the main circuit, and being connected by a lead 201 to one of the contact points, as 198, and continuing from the other contact point 199 through a lead 202 connected with a line 203 which supplies the solenoid field winding, the circuit being completed from the solenoid through the line 167, which is joined to the output main circuit line B as already above described. Means are provided to electrically bridge the gap provided by the spaced contact points 198—199. This means comprises a contact bearing dummy piece 204, such as a cardboard member, or other electrically non-conductive carrier, to which is secured a metallic contact strip 205. Such dummy pieces 204 may be inserted in the envelope magazine between lots of the envelopes containing a desired predetermined number. After the last envelope from a given lot is withdrawn from the magazine, a contact bearing dummy piece 204 will be engaged by the suction head and withdrawn from the magazine, and then carried to the platform 67 and deposited over the contact points 198 and 199, in such manner that the metallic contact strip 205 will bridge the gap between the latter, thus closing a circuit which energizes the solenoid 150 to open the main circuit make and break switch so as to stop operation of the machine.

A similar means is provided in connection with the insertion assembly delivering means, the same comprising a pair of contact points 206 and 207 which are fixed in the runway 2 at the loading station L. These contact points also provide an open gap normally interrupting a shunt circuit including the main switch actuating solenoid 150; said circuit e. g. comprises the described ingoing line 200 extending from the incoming line of the main circuit, and being connected by a lead 208 to the contact point 206, and continuing from the other contact point 207 through a lead 209 connected to the line 203 to the solenoid 150, the circuit being completed as above described. Contact bearing dummy pieces 204—205 may be fed from an insertion material magazine and thence along the runway 2 until brought into bridging engagement with the contact points 206—207,

thus completing the circuit to energize the solenoid 150, and thereupon stop the machine operation in the manner already above described.

As many changes could be made in the above described constructions and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:—

1. In a machine of the class described, in combination with a plurality of magazines to hold supplies of insertion items, a collecting runway to receive items from said magazines, driven delivery rolls between said magazines and said runway, ejector wheels having segmental frictional facings for withdrawing items from said magazines and advancing the same to the delivery rolls, electric motor driven transmission means for actuating the machine, said transmission means including a shaft for actuating said ejector wheels, means for driving said delivery rolls at a greater surface speed than that of said ejector wheels, lost motion driving connections between said ejector wheels and the actuating shaft therefor, a power circuit supplying said motor, a main manually closed switch in said power circuit, electro-magnetic means for opening said main switch, a control circuit for energizing said main switch opening means, a mechanically driven timed make and break means in said control circuit operated by the actuating shaft for said ejector wheels, additional make and break means in series with said timed make and break means, said additional make and break means being disposed in the path of movement of items from the magazines to the delivery rolls, and means operative in conjunction with said ejector wheels for temporarily opening said additional make and break means for the passage of items to and engagement thereof by said delivery rolls, said additional make and break means being adapted to close on failure of movement of items from any magazine to delivery rolls, whereupon completion of the closing of said control circuit by said timed make and break means in turn operates said main switch opening means to interrupt the power circuit and stop the machine.

2. In a machine of the class described, in combination with a plurality of magazines to hold supplies of insertion items, a collecting runway to receive items from said magazines, driven delivery rolls between said magazines and said runway, ejector wheels having segmental frictional facings for withdrawing items from said magazines and advancing the same to the delivery rolls, electric motor driven transmission means for actuating the machine, said transmission means including a shaft for actuating said ejector wheels, means for driving said delivery rolls at a greater surface speed than that of said ejector wheels, lost motion driving connections between said ejector wheels and the actuating shaft therefor, a power circuit supplying said motor, a manually closed main switch in said power circuit, electro-magnetic means for opening said main switch, a control circuit for energizing said main switch opening means, a mechanically driven timed make and break means in said control circuit operated by the actuating shaft for said ejector wheels, additional make and break means in series parallel with said timed 75

make and break means, said additional make and break means being disposed in the path of movement of items from the magazines to the delivery rolls, each said additional make and break means comprising a stationary contact blade and a movable contact blade between which items move to said delivery rolls, means for moving said movable contact blade into and out of contact with said stationary contact blade, and cam means operative with the ejector wheels for controlling the movements of said movable contact blade, whereby said contact blades engage upon failure of movement of items from any magazine to the delivery rolls, whereupon completion of the closing of said control circuit by said timed make and break means in turn operates said main switch opening means to interrupt the power circuit and stop the machine.

3. In a machine of the class described having means to withdraw items from supply magazines including driven delivery rolls, an electric motor driven transmission means for actuating the machine and a power circuit supplying said motor including a manually closed main switch and electro magnetic means for opening said main switch, a control circuit including said opening means, and control circuit closing means associated with at least one magazine and operative on simultaneous advancement to the delivery rolls cooperative with said magazine of more than one of the items from the latter, whereby said opening means is energized to open said main switch and thus stop the machine, said control circuit closing means comprising a pair of normally separated contact members, a rotatable trip wheel having contact engaging means cooperative with a driven roll of said delivery rolls and operative upon the entrance of a plurality of items between said driven roll and said trip wheel to rotate the latter and carry its contact engaging means into closing relation to said separated contact members, and means for adjusting said trip wheel in spaced relation to the driven delivery roll to provide clearance space for the passage of a normally constituted insertion item in non-actuating relation to the trip wheel.

4. In a machine of the class described having means to withdraw items from supply magazines including delivery rolls, an electric motor driven transmission means for actuating the machine and a power circuit supplying said motor including a manually closed main switch and electro-magnetic means for opening said main switch, a control circuit including said opening means, and control circuit closing means associated with at least one magazine and operative on simultaneous advancement to the delivery rolls cooperative with said magazines of more than one of the items from the latter, whereby said opening means is energized to open said main switch and thus stop the machine, said control circuit closing means comprising a pair of normally separated contact members, a rotatable trip wheel having contact engaging means cooperative with a driven roll of said delivery rolls and operative upon the entrance of a plurality of items between said driven roll and said trip wheel to rotate the latter and carry its contact engaging means into closing relation to said separated contact members, means for adjusting said trip wheel in spaced relation to the driven delivery roll to provide clearance space for the passage of a normally constituted insertion item in non-actuating relation to the trip wheel, and releas-

able means for locking said trip wheel in actuated closing relation to said contact members.

5. In a machine for delivering and collecting a plurality of insertions from a series of magazines to form successive assemblies thereof and to deliver envelopes for reception of said assemblies and thereupon insert the latter into the envelopes, a collecting runway to receive items from the magazines, a loading platform at the end of said runway to which envelopes are opposed to receive insertion assemblies, means cooperative with said runway for collecting the items step by step and thereupon delivering assemblies thereof successively upon said platform, insertion means for moving the assemblies from the loading platform into awaiting envelopes, electric motor driven means for operating the machine including said collecting and insertion means, a power circuit supplying said motor, a manually closed main switch in said power circuit, electrical means for opening said main switch, a normally interrupted control circuit serving said main switch opening means, a pair of spaced gap forming contact points in said control circuit mounted in and exposed at the surface of said loading platform, and a gap bridging means adapted to be associated with selected assembly forming items so as to be removed from the containing magazine and advanced by said collecting means under predetermined selective conditions to said loading platform, and thereby into bridging relation to said gap forming contact points to close said control circuit whereby said main switch opening means is energized to open said main switch and thus stop the machine.

6. In a machine for delivering and collecting a plurality of insertions from a series of magazines to form successive assemblies thereof and to deliver envelopes for reception of said assemblies and thereupon insert the latter into the envelopes, a loading platform upon which collected assemblies are successively deposited, an envelope supporting platform extending transversely adjacent to the discharge end of said loading platform, an envelope magazine having its bottom end spaced above said supporting platform, vertically reciprocable pneumatic suction means adapted to successively engage and withdraw envelopes from the bottom of said envelope magazine to deposit the same on said supporting platform, pneumatic means to open the flaps of the thus withdrawn and deposited envelopes, means reciprocally movable relative to said supporting platform adapted to engage and move the deposited open envelope along said supporting platform into insertion assembly receiving relation to said loading platform, and means to guide the open envelope flap beneath the discharge end of said loading platform.

7. In a machine for delivering and collecting a plurality of insertions to form successive assemblies thereof and to deliver envelopes for reception of said assemblies and thereupon insert the assemblies into the envelopes and then discharge filled envelopes from the machine, electric motor driven means for operating the machine, a power circuit supplying said motor, a main switch in said power circuit, electrical means for actuating said main switch, a control circuit including said actuating means, and control circuit closing means mounted in the path of movement of filled envelopes from the machine and operative by engagement of envelopes containing an excess of inserted material, whereby said main switch actuating means is ener-

gized to open said main switch and thus stop the machine, said control circuit closing means comprising a yieldably rotatable trip wheel, means for adjustably spacing said trip wheel relative to the path of discharge of filled envelopes, and circuit closing elements comprising a movable element actuated by the communicated rotative motion of said trip wheel, and a stationary element engageable by said movable element when so actuated.

8. In a machine for delivering and collecting a plurality of insertions from a series of magazines to form successive assemblies thereof and to deliver envelopes for reception of said assemblies and thereupon insert the latter into the envelopes, a collecting runway to receive items from the magazines, a loading platform having a lip to overlie an open envelope flap stationed at the discharge end of said platform, means cooperative with said runway for collecting the items step by step and thereupon delivering assemblies thereof successively upon said platform, insertion means for moving the assemblies from the loading platform into awaiting envelopes, a lift-blade means movable into the awaiting envelope mouth to hold the same open and to guide assemblies therein as advanced by said insertion means, a flexible guide tongue means movable beneath the platform and thence into an awaiting envelope to extend over a window panel with which the latter may be provided, a winding drum by which said tongue is manipulated, timed means for actuating said drum to project and retract said tongue, and a yieldable operating connection between said latter means and said drum.

9. In a machine for delivering and collecting

a plurality of insertions from a series of magazines to form successive assemblies thereof and to deliver envelopes for reception of said assemblies and thereupon insert the latter into the envelopes, a collecting runway to receive items from the magazine, a loading platform having a lip to overlie an open envelope flap stationed at the discharge end of said platform, means cooperative with said runway for collecting items step by step and thereupon delivering assemblies thereof upon said platform, a lateral stop bordering said platform, means cooperative with said stop to align the items of the assemblies delivered upon said platform preparatory to insertion into awaiting envelopes, insertion means for moving the assemblies from the platform into the envelopes, lift-blade means movable into the awaiting envelope mouth to hold the same open and to guide assemblies therein when advanced by said insertion means, a flexible guide tongue means movable beneath the platform and thence into an awaiting envelope to extend over a window panel with which the latter may be provided, a winding drum by which said tongue is manipulated, timed means for actuating said drum to project and retract said tongue, and a yieldable operating connection between the latter means and said drum.

10. In a machine of the class described as defined in claim 9, an air jet discharge means to distend the awaiting envelope mouth subject to the entrance of said lift-blade means therein.

11. In a machine of the class described as defined in claim 8, an air jet discharge means to distend the awaiting envelope mouth subject to the entrance of said lift-blade means therein.

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