Feb. 20, 1923. 1,446,256

J. D. LANE ET AL

MACHINE FOR FILLING AND CLOSING ENVELOPES

Filed May 4, 1921 6 sheets-sheet 1

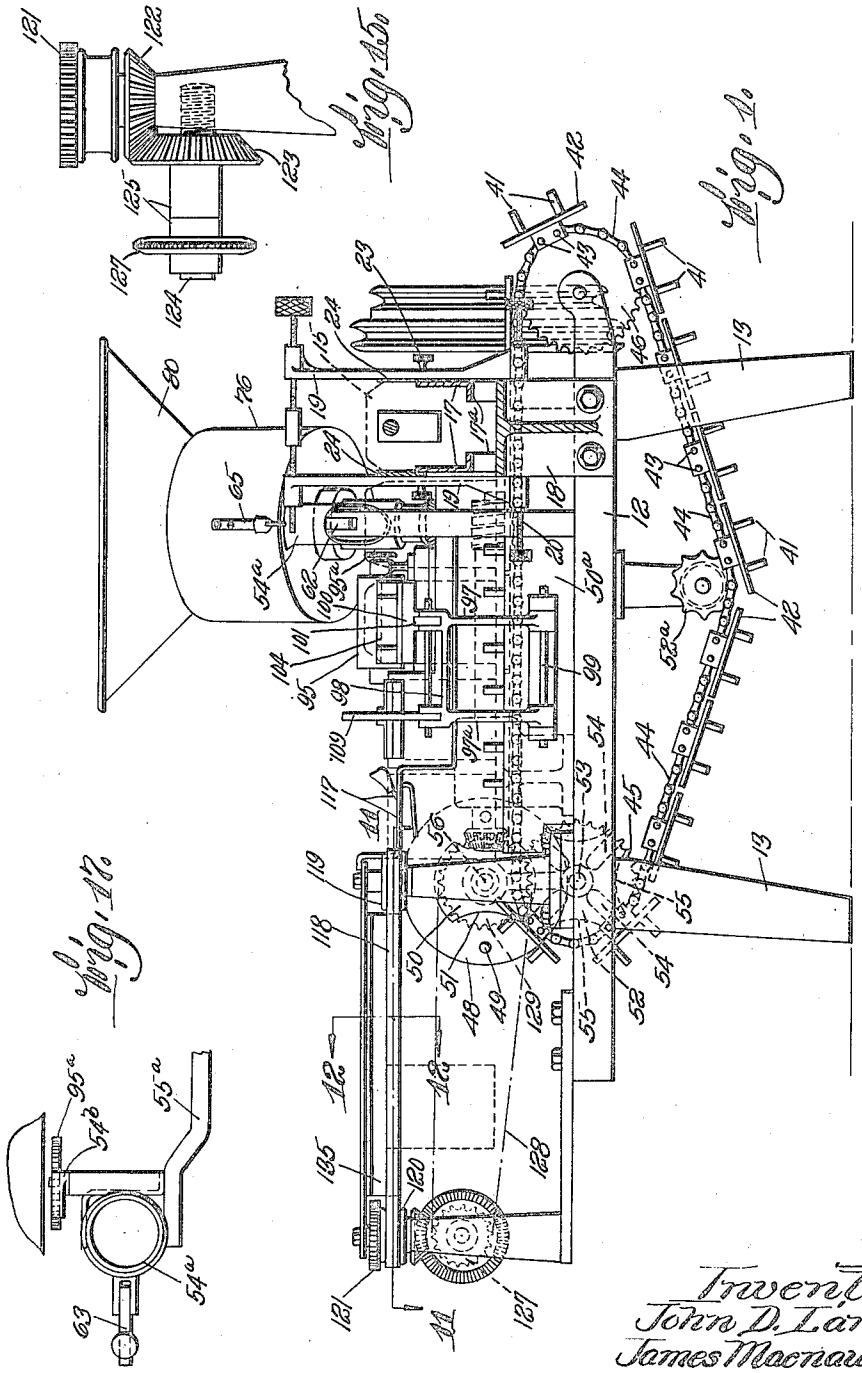

Fig. 1a.

Fig. 1.

Fig. 12.

Inventors
John D. Lane
James Macnaughtan
by Wright Brown Quinby & Mayo
Attys

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Filed May 4, 1921 6 sheets-sheet 2

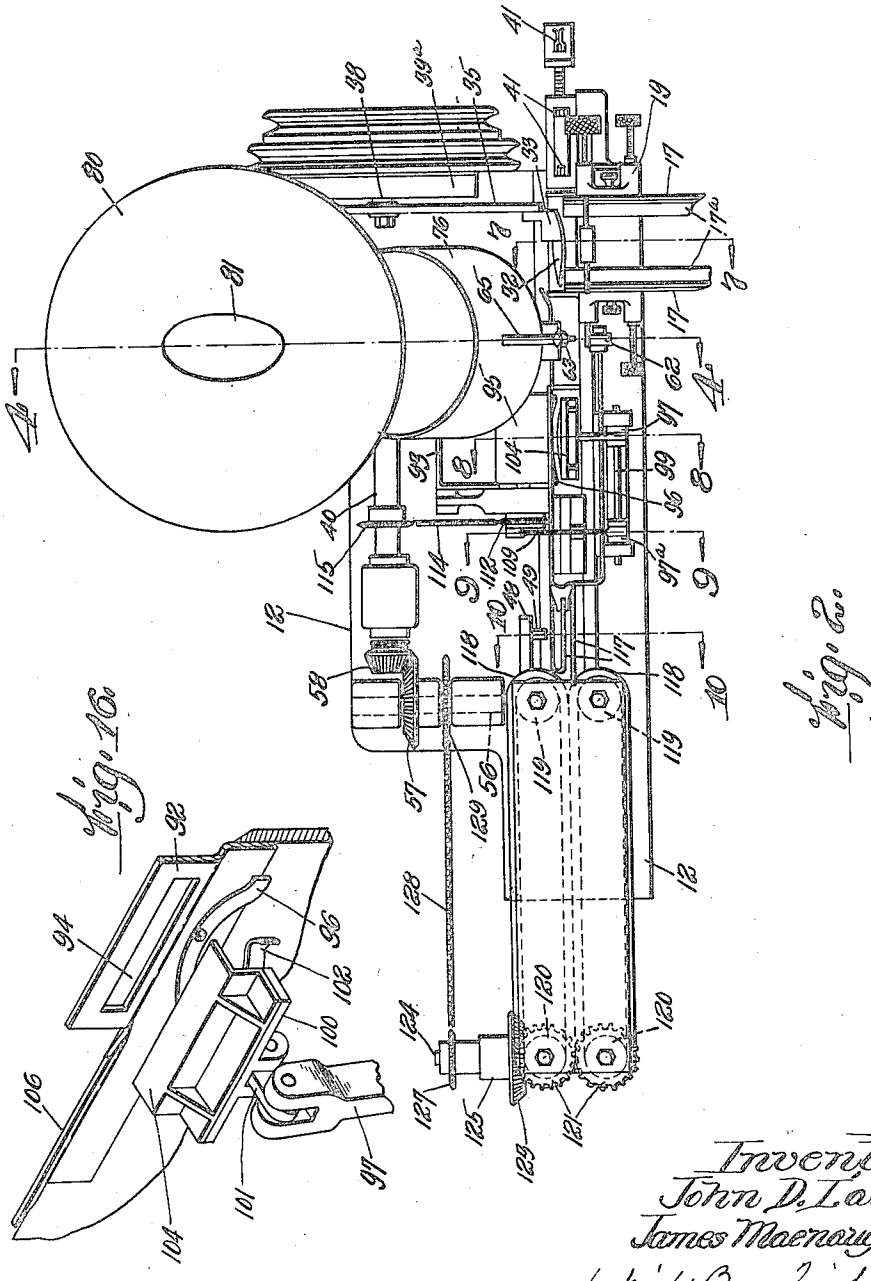

Fig. 2.

Fig. 1a.

Inventors
John D. Lane
James Macnaughtan
by Wright Brown Quinby & May
Attys

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J. D. LANE ET AL

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Filed May 4, 1921 6 sheets-sheet 3

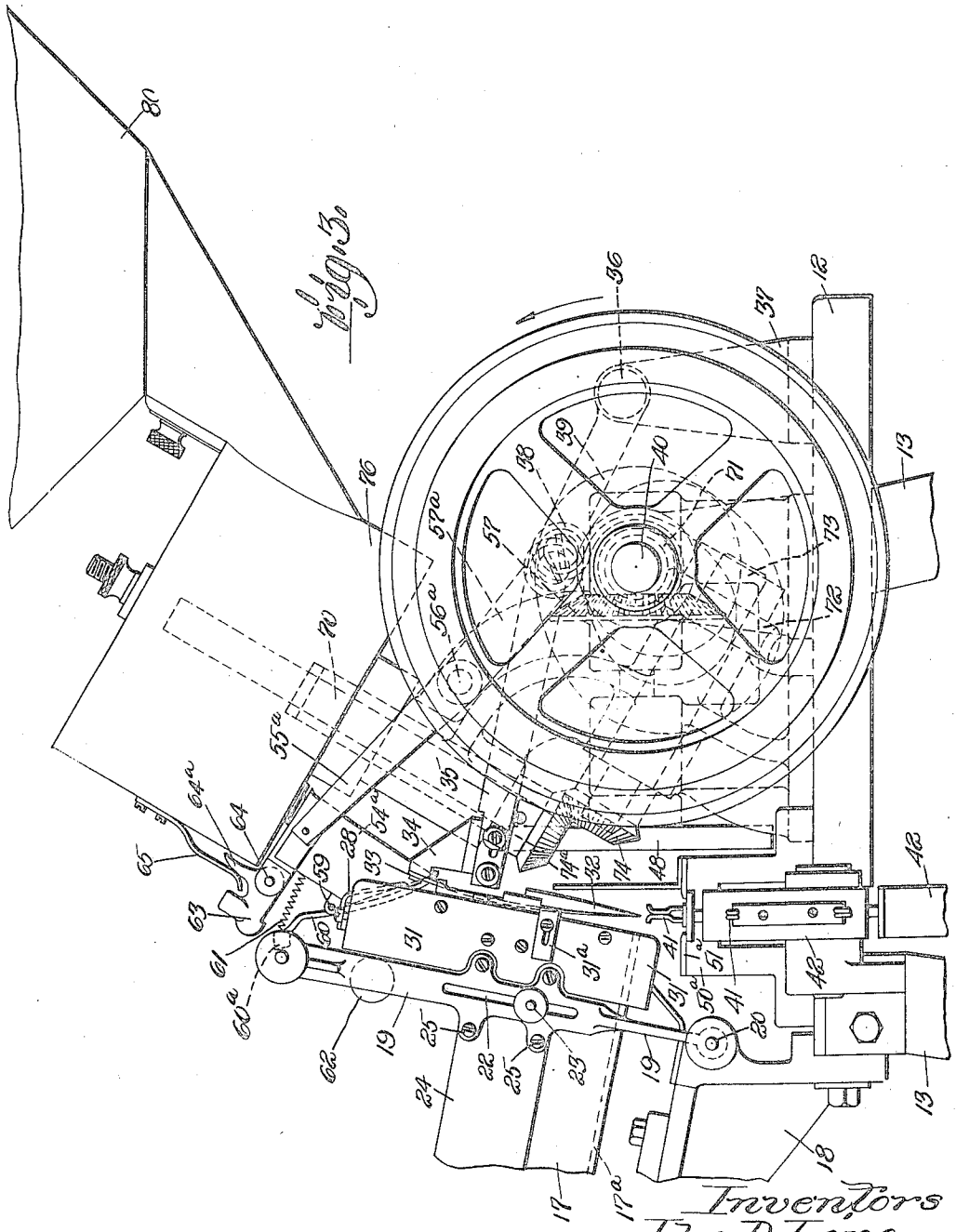

Fig. 3.

Inventors
John D. Lane
James Macnaughtan
by Wright Brown Quinby & Mayo
Attys

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J. D. LANE ET AL

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Filed May 4, 1921 6 sheets-sheet 4

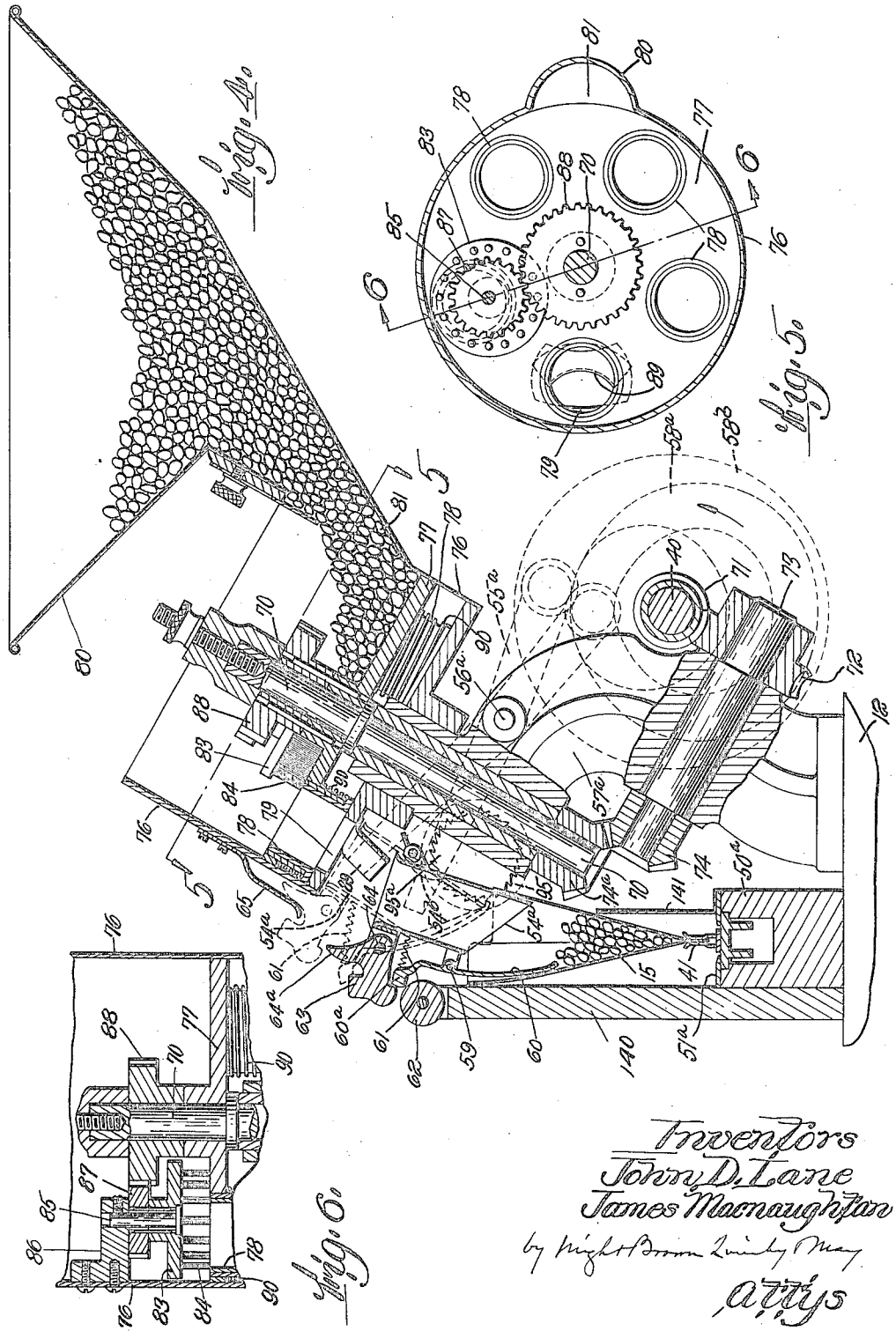

Fig. 4.

Fig. 5.

Fig. 6.

Inventors
John D. Lane
James Macnaughtan
by Wright Brown Quinby & May
Attys

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MACHINE FOR FILLING AND CLOSING ENVELOPES

Filed May 4, 1921 6 sheets-sheet 5

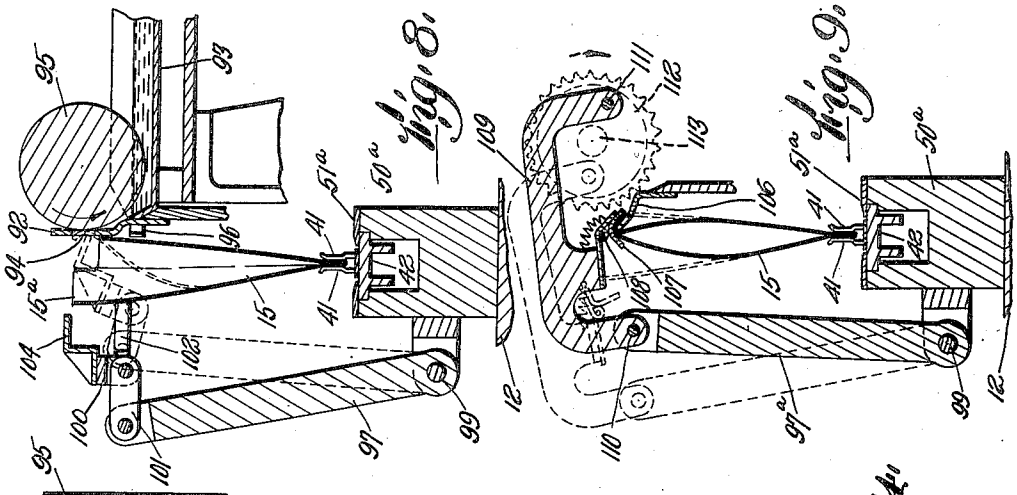

Fig. 8.

Fig. 9.

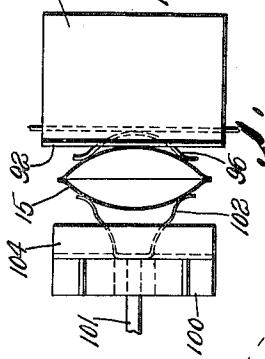

Fig. 13.

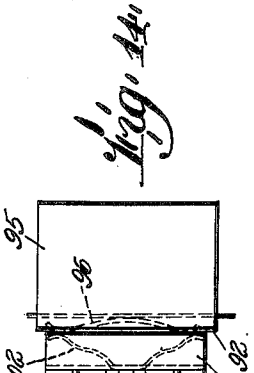

Fig. 14.

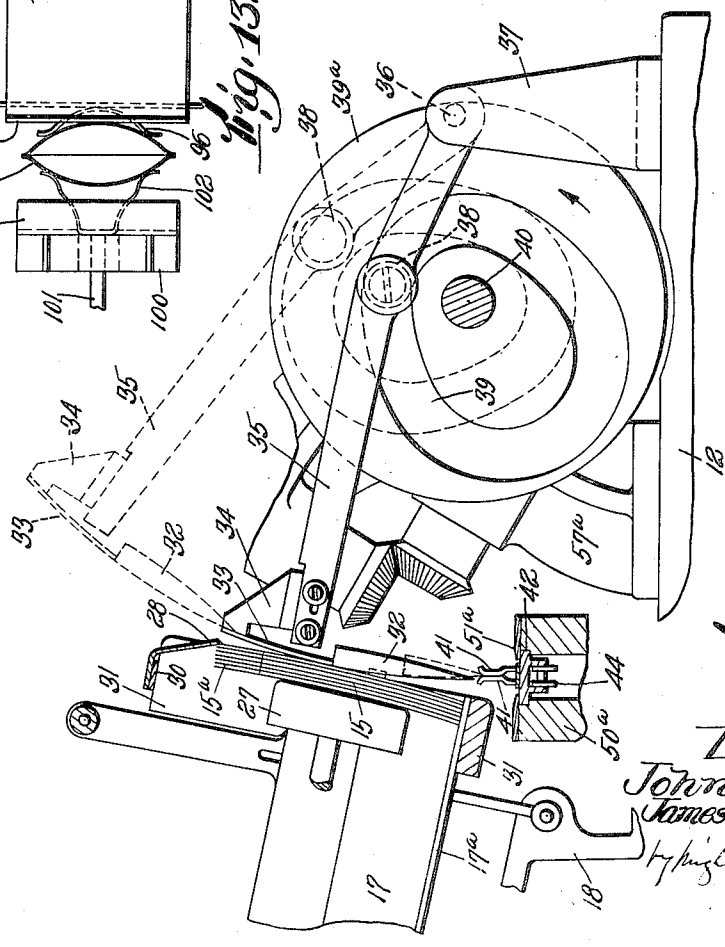

Fig. 2.

Inventors
John D. Lane
James Macnaughtan
by Wright Brown Quinby & May
Attys

Feb. 20, 1923. 1,446,256

J. D. LANE ET AL

MACHINE FOR FILLING AND CLOSING ENVELOPES

Filed May 4, 1921 6 sheets-sheet 6

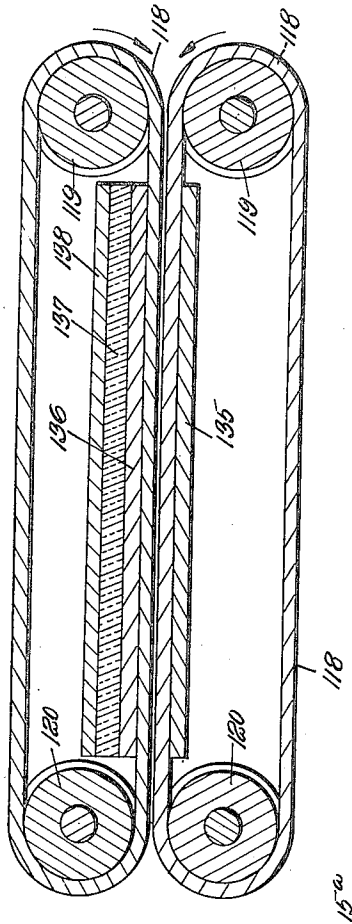

Fig. 11.

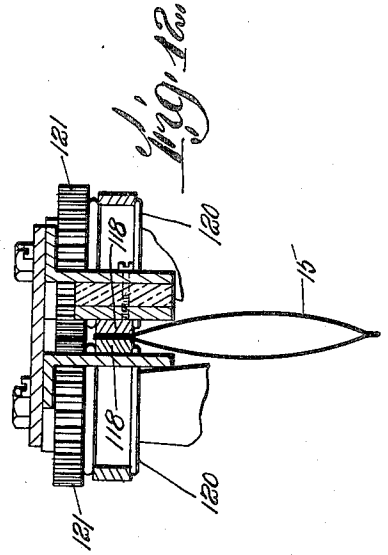

Fig. 12.

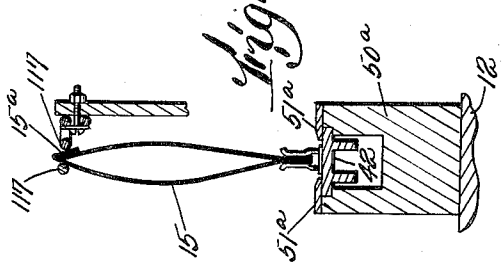

Fig. 10.

Inventors
John D. Lane
James Macnaughtan
by Wright Brown Quinby & May
Attys

Patented Feb. 20, 1923. 1,446,256

UNITED STATES PATENT OFFICE.

JOHN D. LANE, OF BOSTON, AND JAMES MacNAUGHTAN, OF BROOKLINE, MASSACHUSETTS, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO GORDAN MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

MACHINE FOR FILLING AND CLOSING ENVELOPES.

Application filed May 4, 1921. Serial No. 466,840.

To all whom it may concern:

Be it known that we, JOHN D. LANE and JAMES MacNAUGHTAN, citizens of the United States, residing at Boston and Brookline, in the counties of Suffolk and Norfolk, respectively, and State of Massachusetts, have invented new and useful Improvements in Machines for Filling and Closing Envelopes, of which the following is a specification.

This invention relates to machines for packaging relatively small articles by inserting a predetermined number or quantity in an envelope, and closing and sealing the envelope to confine the charge. In the embodiment of our invention hereinafter described, the machine is adapted for packaging articles such as small pieces or globules of candy, but it is to be understood that various other articles may be packaged, by suitably modifying the means employed to segregate charges of articles from a mass of loose articles.

The object of the invention is to provide a simple, durable and efficient machine, including an endless carrier, adapted to hold an envelope successively in a plurality of positions, and to perform a part of the operation while the bag is in each position, and also including means for simultaneously removing the envelope from the carrier, completing the closing of the mouth of the envelope, and delivering the completed package.

The invention is embodied in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a side elevation of a machine embodying the invention, the envelope guide hereinafter described being shown in transverse section.

Figure 2 is a top plan view, the outer portion of the envelope guide being broken away.

Figure 3 is an end elevation, the outer portion of the envelope guide being broken away.

Figure 4 is a section on line 4—4 of Figure 2.

Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is a section on line 6—6 of Figure 5.

Figure 7 is a section on line 7—7 of Figure 2.

Figure 8 is a section on line 8—8 of Figure 2.

Figure 9 is a section on line 9—9 of Figure 2.

Figure 10 is a section on line 10—10 of Figure 2.

Figure 11 is a section on line 11—11 of Figure 1.

Figure 12 is a section on line 12—12 of Figure 1.

Figures 13 and 14 are fragmentary plan views, illustrating a part of the operation.

Figure 15 is a fragmentary elevation, illustrating certain details.

Figure 16 is a fragmentary perspective view, illustrating the face plate, the fixed creasing blade, and other details hereinafter described.

Figure 17 is a fragmentary view, showing a chute and parts connected therewith.

The frame of the machine includes a base portion 12, supported by standards 13. Mounted on the frame is an envelope guide, adapted to support a column of envelopes 15, which are preferably oblong, each being provided at one end with a flap 15^a, forming one side of the mouth before the envelope is closed and sealed. The envelopes are arranged in the guide with their mouth ends uppermost, and the flaps projecting upward. The guide may be composed of two angular bars, having upright portions 17, on which the vertical edges of the envelopes bear, and flanges 17^a, on which the lower ends of the envelopes bear, as shown by Figure 7. Said bars are preferably inclined, as indicated by Figure 7, and may be connected with the frame by means including a bracket 18, attached to the frame, standards 19 connected with the bracket by screws 20, and with the guide bars 17, by means permitting a vertical adjustment to conform the guide bars to envelopes of different lengths. As here shown, the guide bars have screws 21, projecting through slots 22, in the standards 19, and provided with clamping nuts 23. The drawings do not show the full length of the guide bars 17 and bracket 18, and it will be understood that the guide bars may be connected at their outer ends with the outer end of the bracket, by means including outer standards like the stand-

ards 19, and that said outer standards may be rigidly connected with the standards 19 by means such as side bars 24, and screws 25. It will also be understood that the general construction of the envelope guide is well known, and embodies nothing new.

The guide may be provided with any suitable means for pressing the envelopes toward the lower end.

A pressure-applying member 27 is shown by Figure 7, and this may be actuated by springs, or in any suitable way, to exert a suitable pressure on the rear end of the column, causing the column to move forward as fast as the envelopes are picked from its forward end. The delivering end of the guide is provided with a lip 28 (Figure 7), arranged to bear on the upper portion of the flap 15ª of the foremost envelope, sufficiently to cause a slight backward inclination or deflection of the flap relatively to the front or outer side of the envelope, and thus facilitate the entrance into the mouth of the envelope of the picker hereinafter described.

The lip 28 is attached to a cross piece 30, extending between the ends of a U-shaped member 31, said member having lips 31ª (Figure 3), which slightly overlap the outer side of the foremost envelope, and cooperate with the lip 28 in preventing said envelope from leaving the guide until it is forcibly removed by the picker.

The foremost envelope stands with its mouth in the path of a wedge-shaped picker 32, which is connected by a resilient arm 33, with an ear 34, fixed to one end of an oscillatory lever 35. Said lever is pivoted at 36, to a fixed member 37 of the frame, and has a trundle-roll 38, engaged with a cam groove 39, in a cam disk 39ª, mounted on the driving shaft 40. The picker is oscillated or reciprocated in a curved path, and is adapted, when descending from the raised dotted line position shown by Figure 7, to enter the mouth of the foremost envelope, detach said envelope from the column, and force it downward between two pairs of spring clips or jaws 41, supported as shown by Figure 1, by base plates 42, attached at 43 to an endless carrier, which is preferably a sprocket chain 44. The said chain is engaged by sprocket wheels 45 and 46, with the upper stretch of the chain horizontal and extending crosswise of the envelope guide. The picker is oscillated in a curved path, and the arrangement is such that the picker, in moving downward from its raised position, approaches the envelope guide to enter the foremost envelope, and then recedes from the guide and moves to its lowest position to detach the envelope and insert its lower end in a group of carrier jaws.

The chain is moved intermittently by mechanism which may include a well known Geneva movement, comprising a disk 48, having studs 49, a cam 50 fixed to the disk and having reentrant curved faces 51, and a cam 52 fixed to a driven shaft 53, carrying the sprocket wheels 45, and having radial slots 54, cooperating with the studs 49, and reentrant curved faces 55, cooperating with the cam 50. The disk 48 is fixed to a shaft 56 (Figure 2), which is connected by bevel gears 57 and 58, with the driving shaft 40, the disk being continuously driven and imparting, in a well known manner, a step-by-step movement to the sprocket chain, and to the clips or jaws 41 carried thereby. Each base plate 42 is held in position, enabling the two pairs of clips carried thereby to receive the lower end of an envelope detached from the column, and forced downward by the picker, as indicated by Figure 7, the horizontal stretch of the chain 44 being supported by a fixed horizontal guide 50ª located between the chain-engaging wheels, having grooves guiding the base plates 42, and holding-down flanges 51ª, overlapping the base plates. The said guide prevents displacement of the upper stretch of the chain in any direction, and supports the jaws against the downward pressure exerted by the picker on an envelope. The lower stretch of the chain 44 is deflected by an idle sprocket wheel 52ª, as shown by Figure 1.

An envelope thus engaged with the clips is moved edgewise by the next movement of the sprocket chain, to a filling mechanism, from which it receives a charge of material. Said mechanism includes a tubular chute 54ª adapted to oscillate vertically, so that its lower end is held alternately above the mouth of the envelope, as shown by dotted lines in Figure 4, and within the envelope, as shown by full lines. The chute is attached at its upper end to the forked end of a lever 55ª which is pivoted at 56ª to a fixed bracket 57, on the frame, a plan view of the forked end of the lever and the chute being shown by Figure 17. The lever 55ª is oscillated by a cam groove 58ª in a disk 58ᵇ, on the driving-shaft 40. The lower end of the chute 54 is bevelled or inclined, to impart a tapered or wedge form to the chute, adapting it to enter the envelope partially opened by the picker, and additionally open the envelope as the chute descends. Pivoted at 59 to the chute is an envelope-opening or spreading finger 60, which enters the envelope with the chute, and is automatically pressed against one side of the envelope to additionally open the same, as shown by full lines in Figure 4. The finger 60 is normally held by a spring 61 in contact with the longer side of the chute, as shown by dotted lines, the spring acting by its expansion from the position shown by Figure 4, to press the finger 60 to the dotted

line position. When the chute is moving downward, an ear 60ª on the upper end of the finger strikes a deflecting member 62, supported in a fixed position, and is moved by contact with said member against the force of the spring 61 to the envelope-opening position shown by full lines, and is locked in said position by a dog 63, which is pivoted at 64 to an ear on the chute, said dog having a shoulder formed to engage the ear 60ª. The finger 60 is thus held in its bag-opening position until an ear 64ª, on the dog 63, encounters a deflecting member 65, supported in a fixed position, preferably by the hopper hereinafter described, and adapted to displace the dog and release the finger 60 when the chute 54ª reaches its highest position, thus allowing the finger 60 to spring inward against the lower end of the chute, so that the finger normally acts to retard the downward movement of the charge through the chute, and thus prevent a too rapid delivery of the charge to the envelope.

Any suitable mechanism may be employed for segregating charges from a loose mass of articles and delivering a charge to the chute while the latter is raised above the partially opened envelope, the partial opening of the envelope having been caused by the entrance into it of the wedge-shaped picker 32. The articles pass slowly past the finger 60 while the chute is raised, and a portion of the charge is retained in the chute until the latter is sufficiently depressed to cause the described envelope-opening action of the finger 60, whereupon the balance of the charge drops into the fully opened envelope. The chute is then raised to clear the envelope, and the latter is moved forward another step, to the closing and sealing mechanism hereinafter described.

The charge-segregating and delivering mechanism here shown, and adapted for use with articles such as globules of candy, is embodied as next described.

70 (Figure 4) represents an inclined shaft journaled in a bearing on the bracket 57ª, and rotated continuously at a relatively slow rate by a worm 71, on the driving-shaft 40, a worm gear 72, fixed to a counter-shaft 73, journaled in another bearing in said bracket, and provided with a bevel gear 74, meshing with a bevel gear 74ª on the shaft 70. The upper portion of the shaft 70 projects through the bottom of a cylindrical hopper 76, which is fixed to the bracket 57ª, the hopper being coaxial with the shaft. Fixed to the shaft 70 within the hopper is a disk or turret 77, having a plurality of short tubes 78, arranged in a circular series as shown by Figure 5. The inclined hopper bottom is provided at its higher portion with a slot 79, located in the path of the chute 54ª, and adapted to register with one of the tubes 78. The other tubes are closed by the hopper bottom, said tubes and bottom forming a series of charge-receiving cups. A reservoir 80 communicates at 81 with the hopper, and is adapted to hold a mass of loose articles to be packaged, the articles flowing by gravity on to the lower portion of the inclined hopper bottom, and into the tubes 78 which are closed by the hopper bottom, these tubes being lower than the one registering with the slot 79. The rotation of the turret 77 moves the filled tubes, one by one into registration with the slot. While each filled tube is moving toward the slot, the charge therein is evened by an evening device which contacts with the upper side of the turret and scrapes off any articles projecting above the mouth of the cup. Said evening device is preferably a rotary brush, composed of a circular back 83, and bristles 84, bearing on the upper side of the turret. The brush is mounted on a short shaft 85, journaled in a fixed bearing 86 attached to the hopper 76, as shown by Figure 6.

A gear 87, fixed to the shaft 85, meshes with and is driven by a gear 88 fixed to the shaft 70.

The segregating and delivering mechanism is timed to bring a cup tube 78 over the slot 79, when the chute 54ª is raised. The hopper bottom is provided with a guide 89, which is arranged at the lower side of the slot 79, and projects into the chute 54ª when the latter is raised, to guide the articles into the chute. The tubes 78 are preferably movable endwise in the turret 77, and pressed yieldingly against the hopper bottom by springs 90.

The now charged envelope is advanced by the next movement of the envelope carrier to mechanism which applies glue to the flap 15ª.

Figure 8 shows a filled envelope as presented to the glue-applying mechanism, the mouth or upper end of the envelope being open and having the form of a pointed ellipse, as shown by Figure 13. 92 represents a fixed face plate, located at one end of a glue tank 93, which is suitably fixed to the frame. The face plate has a slot 94, which exposes a portion of the periphery of a glue-applying roll 95, rotated by means presently described, to take up glue from the tank, and carry it to the slot 94. To the face plate 92 is fixed a curved spring presser 96, the end portions of which bear yieldingly on one side of the envelope, as shown by Figure 13. An oscillatory frame composed of two arms 97 and 97ª and a cross bar 98, connecting said arms, as shown by Figure 1, is mounted to swing on a fixed stud 99, supported by the frame. To the upper end of the arm 97 is rigidly attached a horizontal bar 100, the attaching means shown by Figure 8 being a short arm 101, rigidly attached at one end to

the arm 97, and at its opposite end to the bar 100. To the bar 100 is fixed a curved spring presser 102, the end portions of which bear yieldingly on the envelope at the side opposite the presser 96. The arm 97 is oscillated by means presently described, so that the bar 100 is moved laterally from the position shown by Figure 13, and by full lines in Figure 8, to the position shown by Figure 14, and by dotted lines in Figure 8. The spring pressers 96 and 102 are thus caused to press the sides of the envelope together above the inserted charge. At the same time, a bending blade 104, carried by and projecting forward from the bar 100, bends a portion of the envelope flap 15^a into the slot 94, in the face plate, and presses said portion against the glue roll 95, as shown by dotted lines in Figure 8, so that a strip of glue is applied to the flap.

The glue roll is rotated step-by-step by a pawl 54^b (Figure 4), connected with the chute 54 to reciprocate therewith, and a ratchet 95^a on the shaft of the glue roll 95.

The envelope is now moved edgewise, by the endless carrier, another step, to position for creasing the gummed flap, this position being shown by Figure 9. This movement brings the glued flap beside a fixed creasing blade 106, which may be integral with the plate 92, as shown by Figure 16. An angular creasing blade 107 cooperates with the fixed blade 106, in creasing the flap at its junction with the body of the envelope. The angular blade is hinged at 108, to a blade-holder 109, shown as a bar having offset ends, one of which is pivoted at 110 to the arm 97^a. The other offset end is connected eccentrically by a pivot 111, to a rotary wheel 112, mounted on a shaft 113, journaled in a fixed bearing, not shown, said wheel being continuously rotated, preferably by a sprocket chain 114 (Figure 2), connecting a sprocket wheel 115 on the driving-shaft 40, with the wheel 112, the latter being also a sprocket wheel. The rotation of the wheel 112 causes the blade-holder 109 to rise and fall, and the angular creasing blade 107 to alternately approach and recede from the fixed creasing blade 106, as shown by full and dotted lines in Figure 9, the blades being thus caused to crease the flap, preparatory to the pressure of the flap against one side of the envelope.

The blade-holder 109 imparts an oscillating movement from the wheel 112 to the connected arms 97 and 97^a and thus causes the latter to actuate the bar 100 and the bending blade 104.

After the creasing operation, the endless carrier again moves the envelope forward, and slides the creased flap and the upper end portion of the envelope between two fixed parallel horizontal pressing members 117, of resilient wire, as shown by Figures 2 and 10. These members are secured to the frame, and guide one edge of the envelope to the nip of two pressing and carrying belts 118. The movement of the envelope end between the members 117, causes an initial pressure of the flap against the side of the envelope, so that the upper end of the envelope becomes V-shaped, as shown by Figure 10. This movement is the final movement imparted to the envelope by the carrier, and sufficiently advances the envelope to enable the nip of the carrying belts 118 to engage the V-shaped end and draw it between the belts, thus flattening the portion that was previously V-shaped, as shown by Figure 12. The belts 118 are carried by a pair of idle pulleys 119, and a pair of driven pulleys 120. These pulleys have vertical axes, and the axes of the driven pulleys are connected by gears 121. The axes of one of the driven pulleys has a bevel gear 122 (Figure 15), which meshes with a bevel gear 123, on a hub 125, which rotates on a fixed stud 124.

A sprocket wheel 127, fixed to the hub 125, is connected by a sprocket chain 128, with a sprocket wheel 129, on the shaft 56. Mechanism is thus provided for driving the carrying belts at a sufficiently rapid rate to deliver the envelopes at the outer ends of the belts, faster than they are taken in at the inner ends.

The sealing of the envelopes is completed by the belts, and the envelopes drop from the outer ends of the belt stretches, and may be received by any suitable receptacle.

The envelope-engaging stretches of the belt are backed by strips or backing members 135 and 136, as shown by Figure 11, these members keeping the stretches parallel with each other. The member 136 is preferably permitted to yield slightly, by a rubber cushion 137, backed by a rigid member 138, the member 135 being preferably rigid. Provision is thus made for conforming the belt stretches to the thickness of the envelope ends passing between them.

To support a filled bag against lateral movement during its travel through the machine, we provide upstanding guide members 140 and 141, arranged as shown by Figure 4, at opposite sides of the upper stretch of the carrier. An opening (not shown) may be provided in the lower portion of the member 140, through which a charge may escape at the front side of the machine, when there is no envelope in position to receive the charge, the inclination of the chute 54^a being such that an escaping charge passes through such opening, without falling on moving parts of the machine.

It will be seen that the machine is of simple construction, the operating mechanism which actuates the moving parts being embodied in a single driving shaft 40, and the described connections which impart mo-

tion from said shaft to one of the wheels engaging the endless carrier, and to the picker, the chute, the glue roll, the moving elements of the closing means, and the discharging belts.

We claim:

1. An envelope-filling machine comprising, in combination, an endless flexible carrier having spaced apart groups of envelope-engaging jaws; means maintaining an upper stretch of the carrier in a substantially horizontal position with the jaws thereon facing upwardly, said means including spaced apart wheels engaging the carrier, and a fixed guide between said wheels supporting said upper stretch and its jaws; an envelope guide arranged to direct a column of envelopes crosswise of the carrier, and provided with means for yieldingly arresting the foremost envelope over one end portion of the said upper stretch; a picker vertically movable in a predetermined path across the delivering end of the envelope guide, and adapted, in moving downward, to detach the foremost envelope and insert its lower end in a group of the carrier jaws supported by the carrier guide; a tubular chute vertically movable in a path beside the path of the picker, and having a wedge-shaped delivering end formed to enter an opened bag on the carrier; means for delivering a charge to the chute, and operating mechanism including a driving shaft, and connections between said shaft, one of the carrier-engaging wheels, the picker, the chute, and the charge-delivering means, whereby the carrier is moved step-by-step to cause the jaws to occupy different successive operative positions, the picker and the chute are reciprocated, and a charge is delivered to the chute.

2. An envelope-filling machine comprising, in combination, an endless flexible carrier, having spaced apart groups of envelope-engaging jaws; means maintaining an upper stretch of the carrier in a substantially horizontal position, with the jaws thereon facing upwardly, said means including spaced apart wheels engaging the carrier and a fixed carrier guide between said wheels supporting said upper stretch and its jaws; an envelope guide arranged to direct a column of envelopes crosswise of the carrier, and provided with means for yieldingly arresting the foremost envelope over one end portion of the said upper stretch; an oscillatory picker movable downward and upward in a curved path, the arrangement being such that the picker, in moving downward from its raised position, first approaches the envelope guide to enter the foremost envelope, and then recedes from said guide, and moves to its lowest position, to detach the envelope and insert its lower end in a group of carrier jaws; an oscillatory tubular chute movable downward and upward in a curved path beside the path of the picker, and having a wedge-shaped delivering end formed to enter an opened envelope on the carrier when the chute is moving downward from its raised position; means for delivering a charge to the chute; and operating mechanism including a driving shaft and connections between said shaft, one of the carrier-engaging wheels, the picker, the chute, and the charge-delivering means, whereby the carrier is moved step-by-step, to cause the jaws to occupy different successive operative positions, the picker and chute are oscillated, and a charge is delivered to the chute.

3. An envelope-filling machine substantially as specified by claim 2, the connections between the driving-shaft and the picker including an oscillating lever, pivoted at one end to a fixed support, and having a resilient arm at its swinging end carrying the picker, said arm permitting the picker to yield when it encounters the foremost envelope.

4. An envelope-filling machine substantially as specified by claim 1, comprising also a spring-pressed finger, pivoted to the said chute, and normally in position to partially obstruct the chute, and means operable by a downward movement of the chute to swing said finger outward from the chute against one side of an envelope, and additionally open the latter.

5. An envelope-filling machine, comprising, in combination, an endless carrier having spaced apart groups of envelope-engaging jaws; mechanism for moving said carrier step-by-step; an envelope guide arranged to direct a column of envelopes in a path substantially at right angles with the path of the carrier; a picker and operating means therefor, said picker being adapted to detach the foremost envelope from said column and engage it with a group of carrier jaws; envelope-charging mechanism including a tubular chute having a wedge-shaped delivering-end, adapted to enter an envelope mouth, means for reciprocating the chute in a predetermined path, a spring-pressed finger pivoted to the chute and normally in position to partially obstruct the latter, said finger having an ear, an ear-engaging member whereby the finger is swung outwardly to open an envelope when the chute enters the envelope, a locking dog carried by the chute and adapted to lock the finger in its envelope-opening position, and means operable by the withdrawal of the chute to displace said dog and release the finger.

6. An envelope-filling machine, comprising, in combination, an endless carrier having spaced apart groups of envelope-engaging jaws; mechanism for moving said carrier step-by-step; an envelope guide arranged

to direct a column of envelopes in a path substantially at right angles with the path of the carrier; a picker and operating means therefor, said picker being adapted to detach the foremost envelope from said column and engage it with a group of carrier jaws; envelope-charging mechanism including a tubular chute, means for moving the same to a raised receiving position and to a depressed delivering position, an inclined hopper having a slot in the higher part of its bottom, arranged to register with said chute, a turret rotatable in the hopper, and having a circular series of tubes movable on the hopper bottom, said tubes and bottom forming charge-receiving cups, means for rotating the turret to bring the tubes successively into registration with said slot, and means for evening charges contained in the tubes.

7. An envelope-filling machine, comprising, in combination, an endless carrier having spaced apart groups of envelope-engaging jaws; mechanism for moving said carrier step-by-step; an envelope guide arranged to direct a column of envelopes in a path substantially at right angles with the path of the carrier; a picker and operating means therefor, said picker being adapted to detach the foremost envelope from said column and engage it with a group of carrier jaws; envelope-charging mechanism including a tubular chute, means for moving the same to a raised receiving position and to a depressed delivering position, an inclined hopper having a slot in the higher part of its bottom, arranged to register with said chute, a turret rotatable in the hopper, and having a circular series of tubes movable on the hopper bottom, said tubes and bottom forming charge-receiving cups, means for rotating the turret to bring the tubes successively into registration with said slot, a rotary charge-evening brush journaled in a fixed bearing in the hopper and contacting with the turret and gearing connecting the brush with the said shaft.

8. An envelope-filling machine, comprising, in combination, an endless carrier having spaced apart groups of envelope-engaging jaws; mechanism for moving said carrier step-by-step; an envelope guide arranged to direct a column of envelopes in a path substantially at right angles with the path of the carrier; a picker and operating means therefor, said picker being adapted to detach the foremost envelope from said column and engage it with a group of carrier jaws; envelope-charging mechanism having means for opening a jaw-engaged envelope and delivering a charge thereto; and envelope-closing mechanism arranged to act on a filled envelope held by the carrier, including a face plate having a slot, a glue roll behind said plate, means being provided for rotating said roll, a bar movable toward and from the face plate, said face plate and bar being provided with spring pressers adapted to bring together and flatten the sides of an envelope above a charge therein, and a bending blade carried by said bar, and adapted to bend a portion of an envelope flap into the face plate slot, and into contact with the glue roll, means being provided for moving the bar relatively to the face plate.

9. An envelope-filling machine substantially as specified by claim 1, comprising also, envelope-closing mechanism arranged to act on a filled envelope held by the carrier and moved from the path of the chute, said closing mechanism including glue-applying means adapted to apply gum to the flap of the envelope, creasing means adapted to crease the flap, and a pair of fixed parallel resilient pressing members arranged in the path of the envelope, and adapted to initially press the gummed flap against the envelope, said glue-applying and creasing means being arranged in tandem order, so that a charged envelope is presented by the carrier, first to the glue-applying means, and then to the creasing means, said operating mechanism including also connections between the driving shaft, the glue-applying means, and the flap-creasing means.

10. An envelope-filling machine substantially as specified by claim 1, comprising also, envelope-closing mechanism arranged to act on a filled envelope held by the carrier and moved from the path of the chute, said closing mechanism including glue-applying means adapted to apply gum to the flap of the envelope, creasing means adapted to crease the flap, a pair of fixed parallel resilient pressing members arranged in the path of the envelope, and adapted to initially press the gummed flap against the envelope, a pair of envelope-carrying belts, forming an elongated nip arranged to receive the envelope from said pressing members, and adapted to flatten the flap end and convey the envelope from the machine, means being provided for supporting and driving said belts, and yielding means backing the nip-forming portions of the belts.

In testimony whereof we have affixed our signatures.

JOHN D. LANE.
JAMES MacNAUGHTAN.