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P. A. GOLLNICK ET AL

1,781,007

DELIVERY MECHANISM FOR ADDRESSING MACHINES

Filed May 31, 1928

5 Sheets-Sheet 1

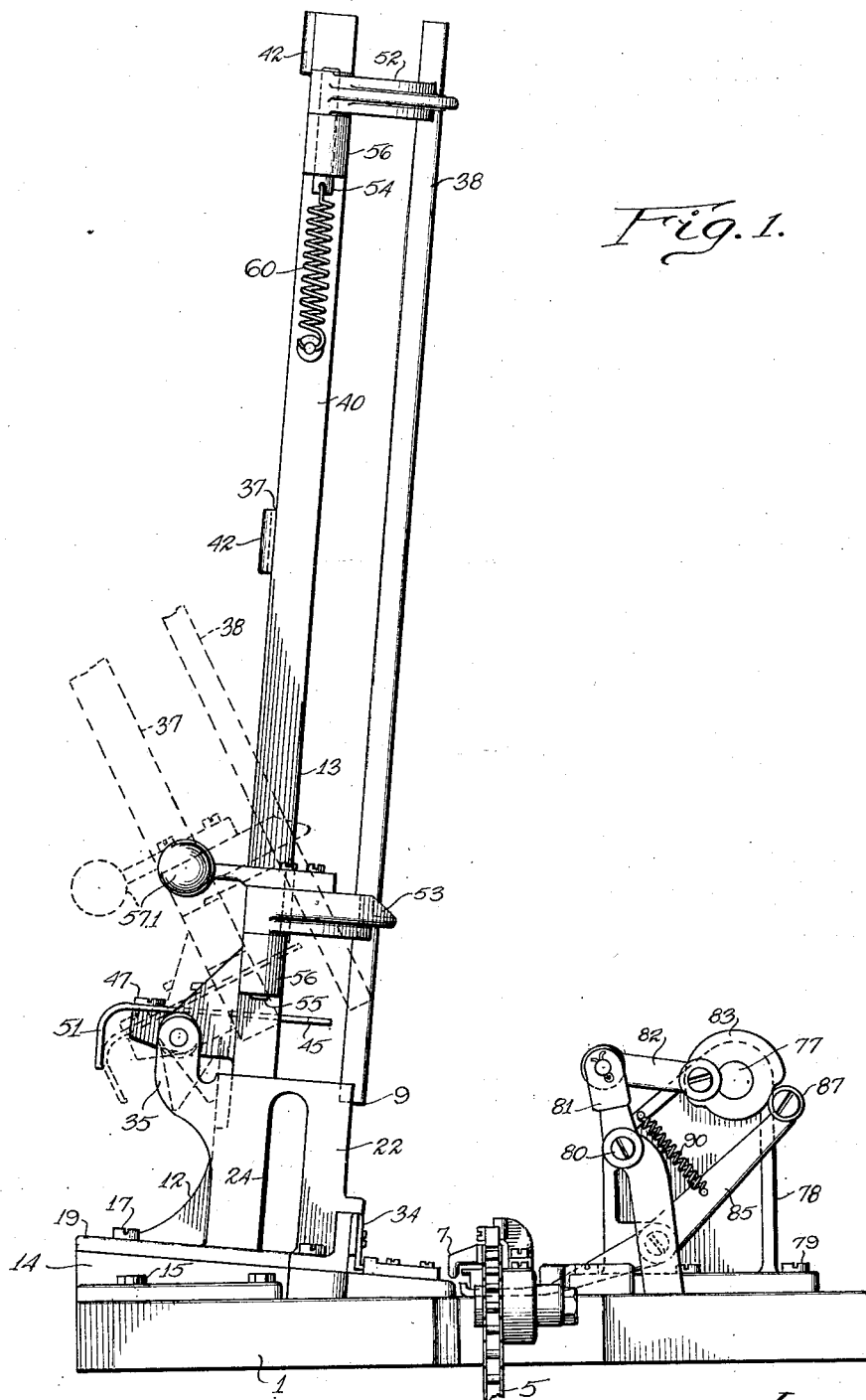


Fig. 1.

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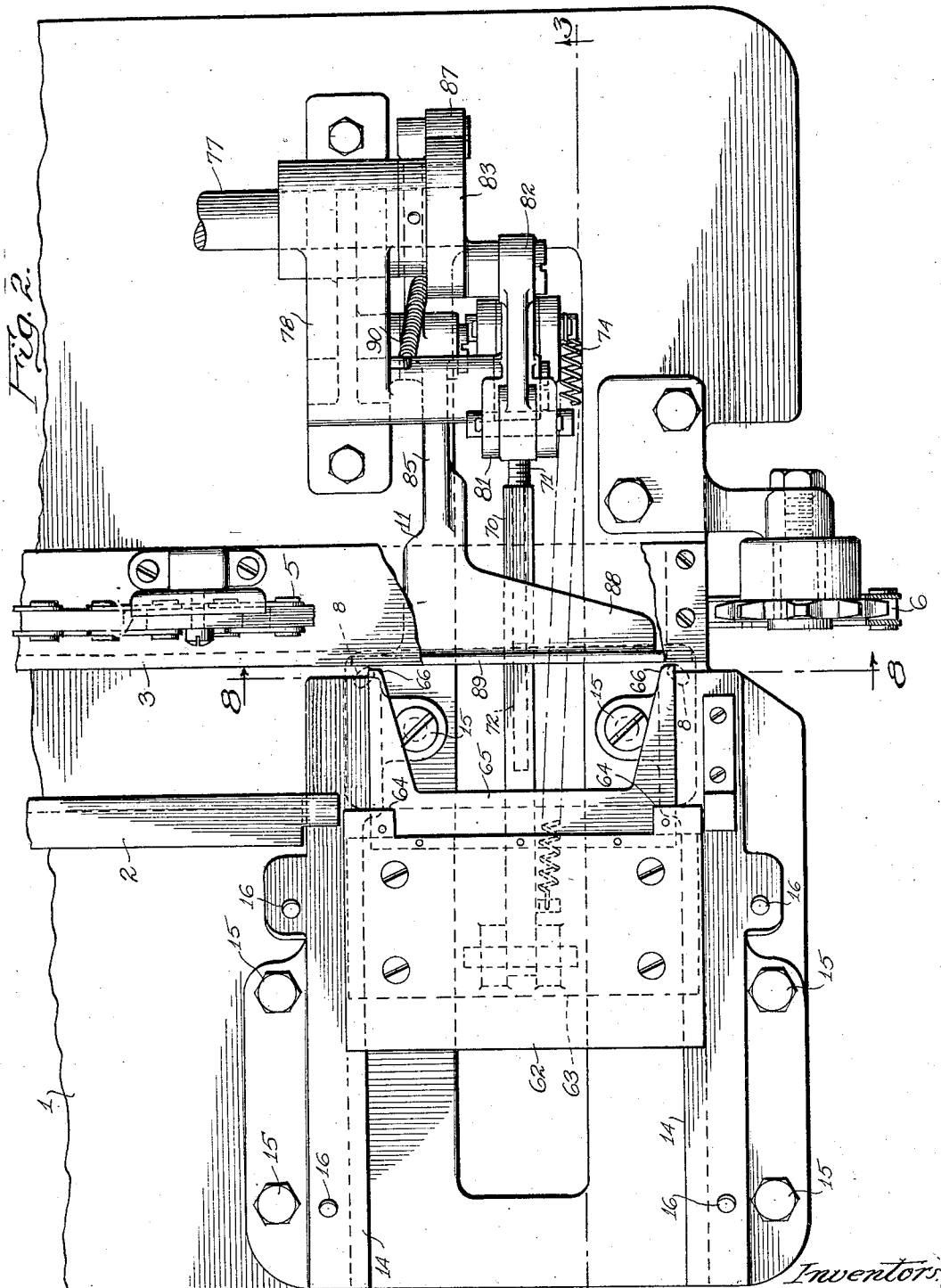
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5 Sheets-Sheet 2



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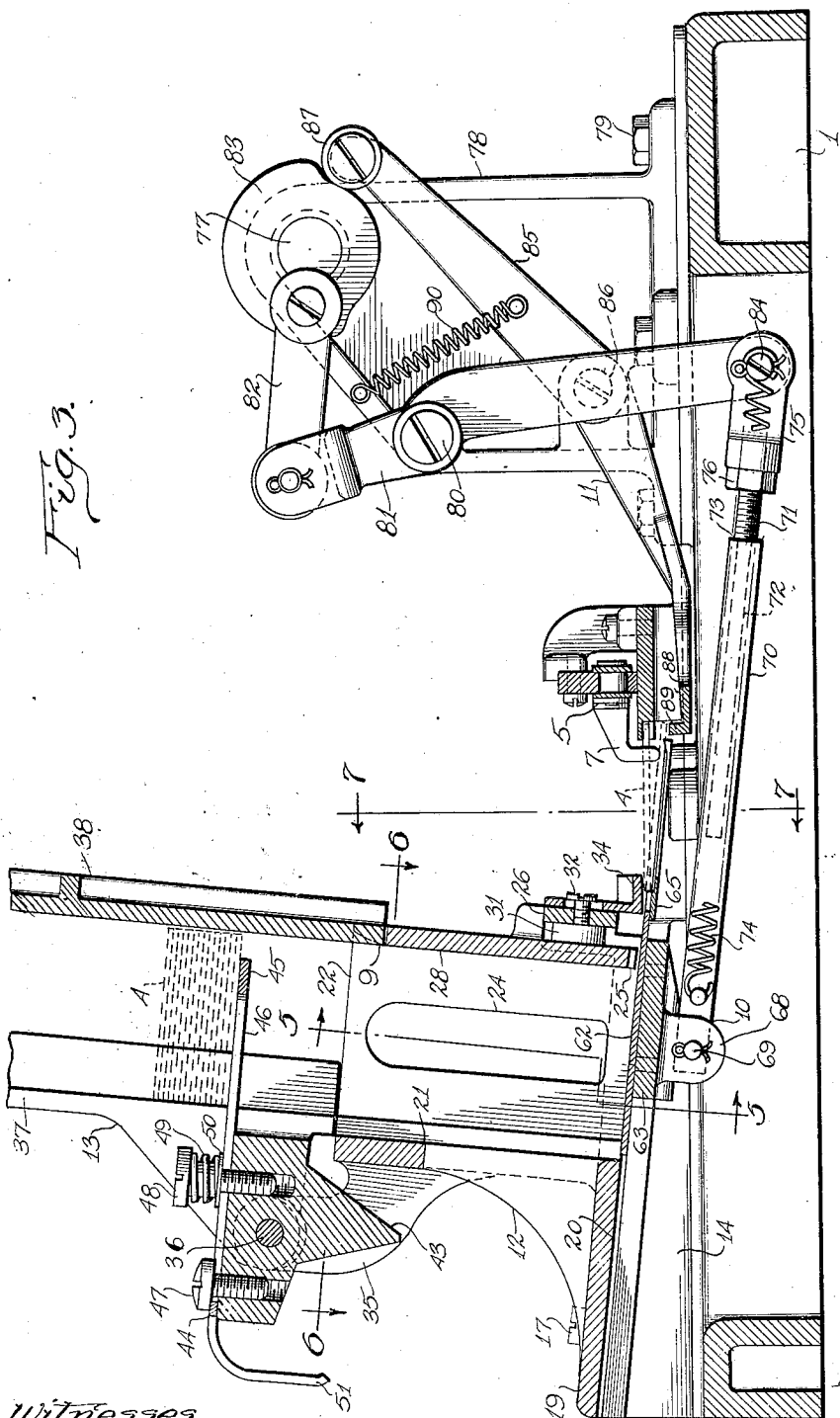
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DELIVERY MECHANISM FOR ADDRESSING MACHINES

Filed May 31, 1928

5 Sheets-Sheet 3



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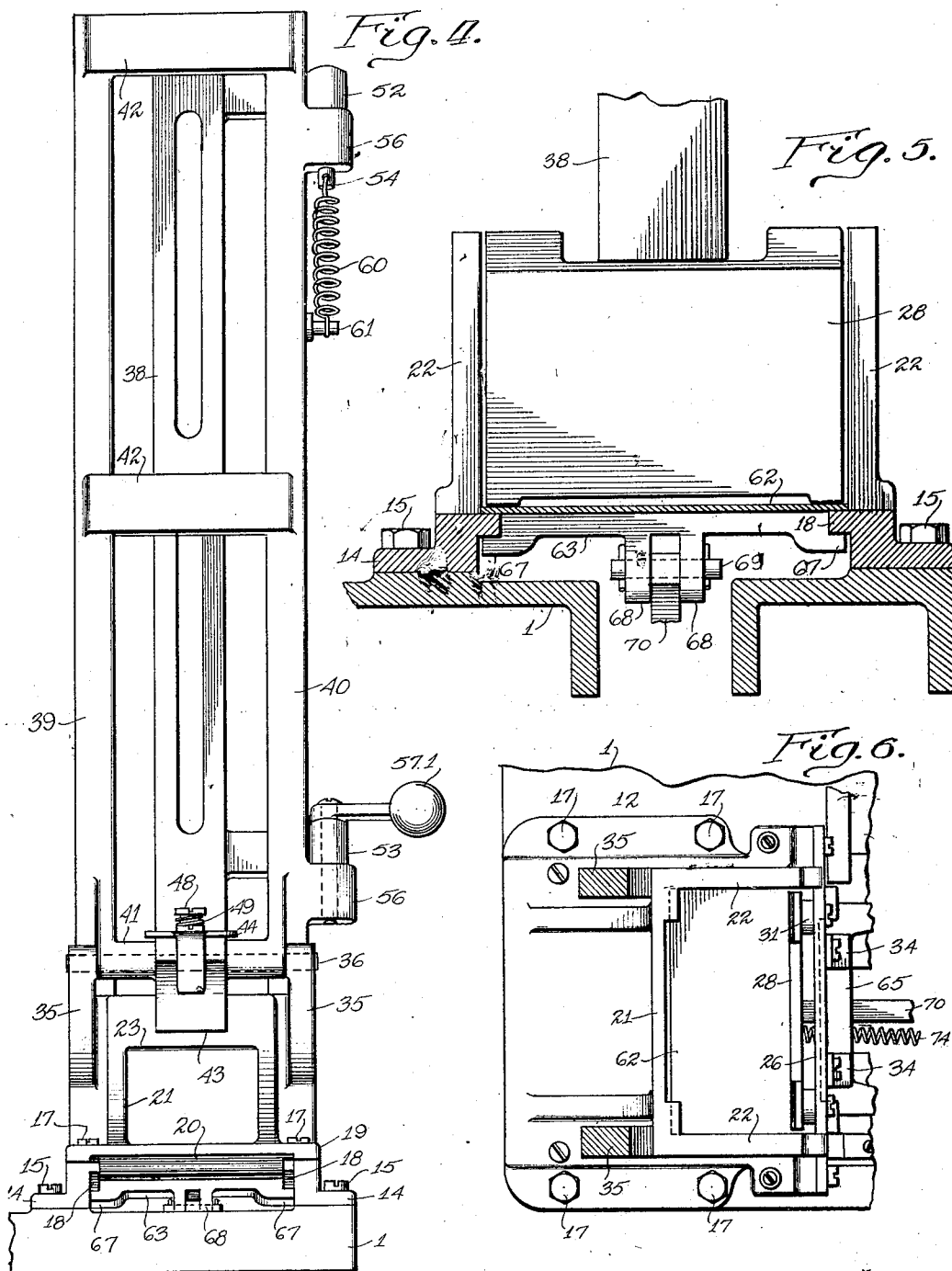
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DELIVERY MECHANISM FOR ADDRESSING MACHINES

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5 Sheets-Sheet 4



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DELIVERY MECHANISM FOR ADDRESSING MACHINES

Filed May 31, 1928

5 Sheets-Sheet 5

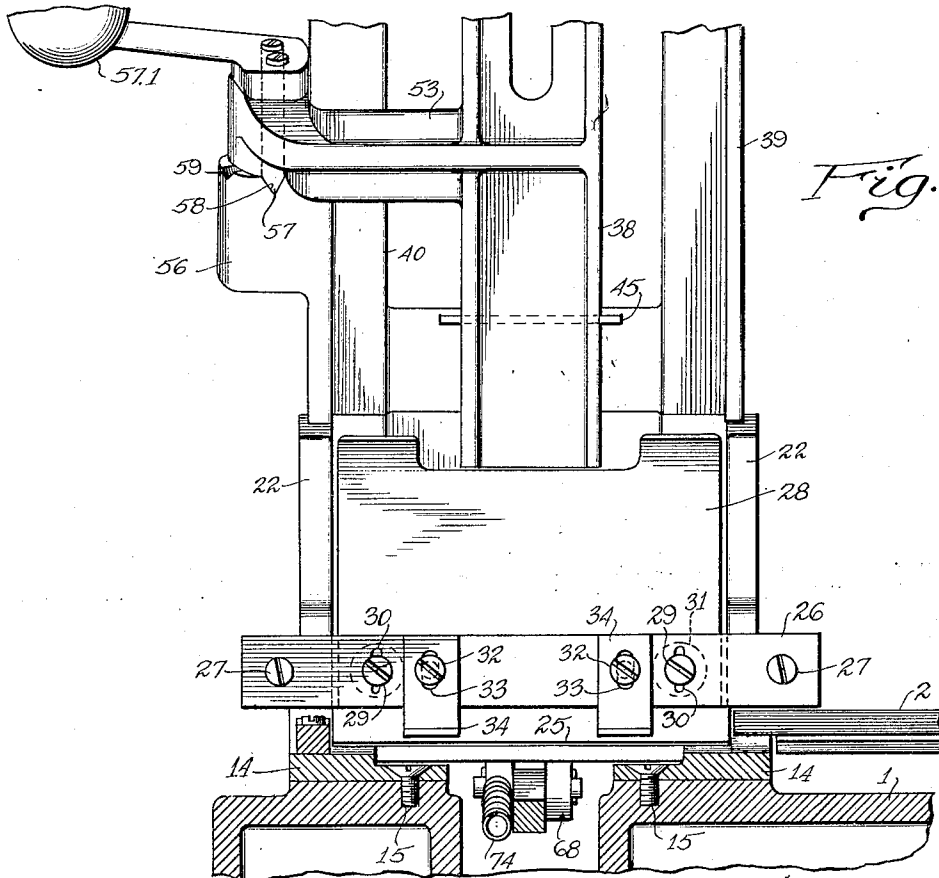


Fig. 7.

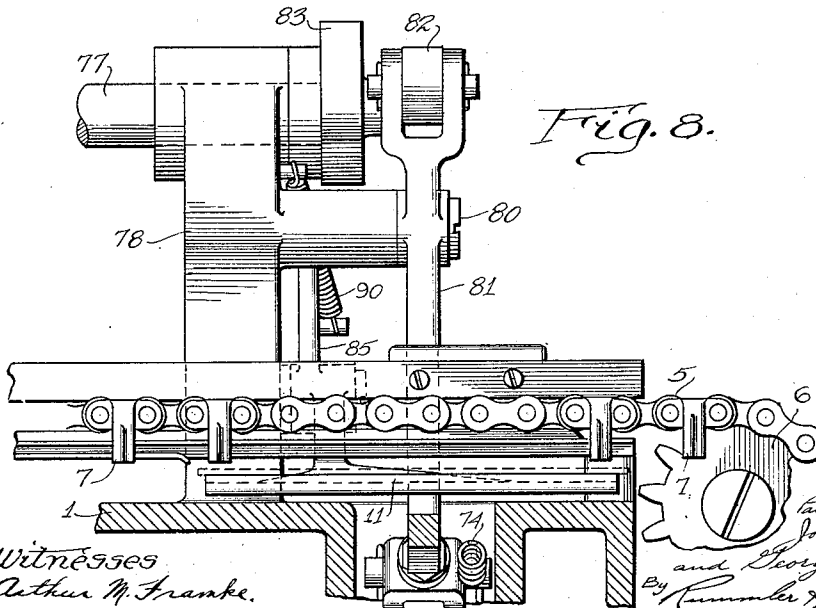


Fig. 8.

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UNITED STATES PATENT OFFICE

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DELIVERY MECHANISM FOR ADDRESSING MACHINES

Application filed May 31, 1928. Serial No. 282,014.

This invention relates to mechanisms for handling cards, stencils, and the like wherein the articles are stacked in a magazine from which they are fed successively, usually from one end of the stack. The invention is particularly adapted for use in connection with the delivery mechanism of addressing machines.

The main objects of this invention are to provide a delivery mechanism for cards, stencils, and the like having an improved form of magazine; to provide a magazine which is readily movable from its normal operative position to another position more convenient to the operator of the machine to facilitate the periodic loading of the magazine; to provide improved means for supporting the cards in the magazine during the loading operation; to provide an improved form of adjustable gate for varying the size of the outlet opening of the magazine; to provide improved mechanism for ejecting the cards, one at a time, through said outlet opening; to provide improved adjustable guiding means for guiding the movement of the cards during their ejection; to provide improved operating mechanism for the ejector; and to provide improved mechanism for lifting a portion of each card into operative engagement with a conveyer after the card has been ejected from the magazine.

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

Figure 1 is an end view of an addressing machine having an improved delivery mechanism applied thereto, the dotted lines representing a part of the magazine in its open position.

Fig. 2 is a top plan of the same, with the magazine removed, and certain parts broken away.

Fig. 3 is a transverse vertical section, taken on the line 3—3 of Fig. 2.

Fig. 4 is a front elevation of the magazine.

Fig. 5 is a vertical section, taken on the line 5—5 of Fig. 3.

Fig. 6 is a horizontal section, taken on the line 6—6 of Fig. 3.

Fig. 7 is a vertical section, taken on the line 7—7 of Fig. 3.

Fig. 8 is a vertical section, taken on the line 8—8 of Fig. 2.

The common form of addressing machine, to which this invention may be applied, comprises a delivery mechanism from which the cards and stencils are moved by a conveyer along a horizontal guideway to a printing position adjacent an impression element which is controlled in its operation by a selector mechanism. The delivery mechanism usually comprises a hopper or magazine wherein the stencils are stacked one above another. A mechanically operated pusher is arranged to move the lowermost stencil from the stack to the guideway. Stencils and index cards therefor are filed usually in a tray or drawer from which they are transferred as a unit to the magazine of the delivery mechanism. In delivery mechanisms heretofore in use, the magazines were fixed in their operative positions adjacent one end of the guideway and necessitated the operator's leaving his normal place at the machine whenever the magazine required loading.

In the construction herein shown, the magazine is mounted so as to permit a portion thereof to be readily swung from its normal position to a loading position which is convenient to the operator stationed at the customary place of operation. The improved delivery mechanism also includes an ejector, controlled by the feeding mechanism of the machine, for moving the cards one at a time from the magazine to the guideway.

Inasmuch as the present invention relates particularly to a delivery mechanism which is adapted for use in connection with various types of machines, only that part of an addressing machine which is believed necessary to a complete understanding of the invention has been illustrated in the accompanying drawings.

In the form shown, the addressing machine, to which an improved delivery mechanism is applied, comprises a stationary frame including a horizontal table 1, having guide rails 2 and 3, forming a guideway along

which stencils and cards 4 are fed by an endless conveyer chain 5, in a step-by-step movement, to the various operating stations, not shown.

5 The guide rail 2 is shorter than the rail 3 so as to permit the stencils to enter the guideway through one side thereof, as shown in Fig. 2.

10 The conveyer chain 5 herein shown is substantially the same as that shown in Gollnick Patent No. 1,666,171, issued April 17, 1928. The chain 5 is mounted on sprockets 6, one of which is shown, and includes a plurality of fingers 7 projecting downwardly into the plane of the guideway for engagement with apertures 8 formed in the stencils 4.

In the construction shown, the improved delivery mechanism comprises a magazine 9, in which the stencils are stacked vertically and from which they are ejected edgewise seriatim by an improved ejector mechanism 10 actuated intermittently by operating means which also actuates a lifting device 11 for raising the advanced edge of an ejected stencil into engagement with the fingers 7.

25 The magazine 9 comprises a standing part 12 and a tiltable part 13 arranged to form a guideway for the cards 4 which move by gravity toward the ejector 10.

30 The standing part 12 is mounted on a pair of spaced rails 14, which are tapered rearwardly, so as to cause the entire magazine to lean rearwardly, thereby insuring contact of the stencils with the gate in the outlet opening. The rails 14 are secured to the table 1 by bolts 15 or other suitable fastening means. Formed in the rails 14, are threaded apertures 16 for receiving bolts 17 which secure the magazine to the rails 14.

40 The rails 14 are provided with inwardly projecting inclined flanges 18 which are adapted to guide the movement of a part of the ejector 10 as hereinafter described.

In the form shown, the standing part 12 45 of the magazine comprises a base part 19 which is recessed on its lower surface to provide a guideway 20 for the pusher plate of the ejector. Formed on the base part 19, is a front wall 21 and a pair of side walls 22 having openings 23 and 24 respectively through which the operator's fingers may be inserted for adjusting the stencils in the event they become jammed.

55 Located between the rear edges of the side walls 22, is an outlet opening 25 through which the lowermost stencil or card is ejected edgewise. Extending across the opening 25, is a bar 26 which is secured to the standing part 12 by screws or bolts 27.

60 Arranged in the opening between the rear edges of the side walls 22, is a gate 28 which forms the rear wall of the standing part 12 and which is vertically adjustable for varying the size of the outlet opening through which the cards are ejected. To permit ver-

tical adjustment of the gate 28, it is mounted on screws 29 which are adjustably supported in slots 30 formed in the cross bar 26, and which are provided with washers 31 located between the gate and the bar 26.

70 Also mounted on the bar 26, is a pair of screws 32 which engages vertical slots 33 in a pair of vertically adjustable angle guides 34 arranged to form a continuation of the guide rail 2 for engaging the stencils as they move through the outlet opening 25.

Formed on the front wall 21 of the standing part 12, is a pair of lugs 35 supporting a hinge pin 36 on which the tiltable part 13 is mounted.

80 In the construction shown, the tiltable part 13 of the magazine comprises a front wall casting 37 having hinged thereon a guide rail 38 providing a gate which is swingable into position to form the rear wall of the part 13.

The casting 37 comprises a pair of substantially parallel rails 39 and 40 connected together by a bearing part 41 and cross bars 42. The bearing part 41 is mounted on the hinge pin 36 and is provided with a depending lug 43 adapted to engage the upper end of the front wall 21 for limiting the forward tilting of the magazine part 13.

Supported on top of the bearing part 41, is a bar 44 disposed transversely of the magazine between the rails 39 and 40 and having its inner end 45 adapted to be projected into the magazine to form a shelf for temporarily supporting a stack of cards which are being inserted into the magazine.

100 The bar 44 is provided with a longitudinally extending slot 46 engaging a pair of screws 47 and 48 mounted on the bearing part 41. Embracing the screw 48, is a spring 49, which bears between the head of the screw and a washer 50 for frictionally resisting the movement of the shelf 45. The outer end of the bar 44 is curved to provide a finger grip or handle 51.

The rail 38 is provided with arms 52 and 53 110 secured to hinge pins 54 and 55 respectively which are loosely seated in bearings 56 formed on the rail 40.

Mounted on the arm 53, is a handle 57.1 whereby the rail 38 is manually moved into 115 and out of its operative position. Formed on the arm 53, is a prong 57 adapted to engage notches 58 and 59 formed in the lower bearing 56 for locking the rail 38 in its closed and open positions respectively. To permit the prong 57 to move from one notch to the other, the hinge pins 54 and 55 are axially shiftable in the bearings 56.

The rail 38 is normally urged downwardly, for holding the prong 57 in one of the notches, by a spring 60, which is connected at one end to the hinge pin 54 and at its other end to a stud 61 on the rail 40.

In the specific construction herein shown, the ejector 10 comprises a pusher plate 62 120

which is located below the magazine and which is mounted on a reciprocable member 63.

The pusher plate 62 is slidable edgewise in the guideway 20 and is provided with a pair of shoulders 64 adapted to engage the edge of a stencil for moving it through the outlet 25.

Mounted on the plate 62 below the shoulders 64, is a supporting shelf 65 adapted to support the lowermost stencil in the stack while it is being ejected. The advanced edge of the shelf 65 is recessed and provided with a pair of prongs 66 bent upwardly to engage the apertures 8 in the stencils 4 to assist the shoulders 64 in ejecting the stencil.

The reciprocable member 63 is provided with a pair of outwardly projecting offset flanges 67 which slidably engage the lower faces of the flanges 18 for guiding the movement of the ejector. Formed on the lower face of the member 63, is a pair of spaced lugs 68 which support a pivot pin 69 connected to the operating mechanism by an improved form of link construction which comprises a pair of telescoping members 70 and 71.

The member 70 comprises a tube having one end connected to the pivot pin 69 and having its other end slidably embracing a reduced portion 72 of the member 71. The inner extremity of the tube 70 is normally held in engagement with a shoulder 73 on the member 71 by means of a spring 74 which is connected at one end to the tube 70 and at its other end to a link 75 threaded on the outer end of the member 71.

With this improved construction, the ejector has a yielding movement, on its operative stroke, under the action of the spring 74 thereby permitting the pusher plate 62 to stop in the event the stencils become jammed. The return stroke of the ejector is positive, due to the shoulder 73 abutting against the extremity of the tube 70.

The member 71 may be adjusted axially relative to the link 75, for varying the stroke of the ejector, by means of a nut 76.

The operating mechanism for reciprocating the ejector comprises a continuously driven shaft 77 journaled in a bracket 78 secured to the table 1 by bolts 79.

Secured to the bracket 78, is a pin 80, on which is pivotally mounted a lever 81, which is connected at its upper end to a link 82, which is pivotally connected to a cam 83 fixed on the shaft 77. The lower end of the lever 81 is pivotally connected to the link 75 by a pin 84 so that, upon rotation of the shaft 77, the lever 81 is oscillated for reciprocating the pusher plate 62.

The pusher plate 62 is inclined downwardly and rearwardly, as shown in Fig. 3, so that, when a stencil is ejected, one edge will be located in the plane of the guideway formed by the rails 2 and 3 and the opposite edge thereof will be located below the guideway in position

to be raised into engagement with the conveyor 5 by the improved lifting device 11.

In the form shown, the lifting device 11 comprises a lever 85 pivotally secured to the bracket 78 by a pin 86. Mounted on the rear end of the lever 85, is a roller 87 which engages the periphery of the cam 83 for rocking the lever 85 so as to intermittently raise and lower its forward end.

Formed on the forward end of the lever 85, is an arm 88 having an upstanding ledge 89 adapted to engage the lower face of the stencil for raising the adjacent edge of the stencil into the plane of the card guideway, so as to permit the prongs 7 of the conveyor to engage the apertures 8 of the stencils. The ledge 89 is normally held in the position shown in Fig. 3 by means of a spring 90 which is connected to the bracket 78 and to the rear end of the lever 85.

In operation, the cards and stencils in the magazine are fed by gravity toward the pusher 62, which is reciprocated continuously by the lever 81. When the pusher 62 is fully retracted, the lowermost stencil in the stack rests upon the shelf 65. Upon the operative stroke of the ejector, the lowermost stencil is pushed out of the magazine through the opening 25.

When the ejector completes its operative stroke, the lifting lever 85 is actuated by the cam 83, thereby raising the flange 89 to lift the rear edge of the ejected stencil into the plane of the guideway to permit the conveyor fingers 7 to engage the apertures 8. The conveyor 5 is driven step-by-step for feeding the stencils along the guide rails 2 and 3.

After the uppermost stencil in the magazine has fallen below the tiltable part 13, the shelf 45 is shifted into the magazine and the gate 38 is opened. A new tray of stencils is then inserted into the magazine so that the entire stack of stencils rests upon the shelf 45. The part 13 is then tilted forwardly to permit the tray to be removed, while the new stack of stencils remains in the part 13.

During the loading of the magazine, the addressing machine continues in operation by reason of the stencils in the standing part 12. After the part 13 has been loaded, the gate 38 is closed and the part 13 is then returned to its normal position. The shelf 45 is then retracted to cause the new stack of stencils to drop onto the stencils in the part 12.

With this improved construction and arrangement of parts, there need be no interruption in the operation of the machine during the reloading of the magazine.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from

the spirit of this invention as defined by the following claims.

We claim:

1. In a device of the class described, a magazine forming a vertically disposed guideway for cards and comprising a hopper part having an outlet opening adjacent its lower end, a movable part located above said hopper part and tiltable with respect thereto, and a shelf mounted on said tiltable part and movable into said guideway for temporarily supporting certain of the cards, said shelf being retractable to permit the cards to drop into said hopper part, said hopper being of sufficient length to permit the storing of a plurality of cards directly below said shelf.

2. In a device of the class described, a magazine forming a vertically disposed guideway for cards and comprising a hopper part having an outlet opening adjacent its lower end, a movable part located above said hopper part and tiltable with respect thereto, a transversely disposed shelf mounted on said tiltable part and movable edgewise into said guideway for temporarily supporting certain of the cards, said shelf being retractable to permit the cards to drop into said hopper part, said hopper being of sufficient length to permit the storing of a plurality of cards directly below said shelf, a handle on said shelf projecting outside of said magazine, and resilient means for resisting the movement of said shelf.

3. In a device of the class described, a magazine forming a vertically disposed guideway for cards and comprising a hopper part having an outlet opening adjacent its lower end, a movable part located above said hopper part and tiltable with respect thereto, said movable part having an opening in one side thereof through which the cards are inserted, a gate adapted to close said opening, and a shelf mounted on said tiltable part and movable into said guideway for temporarily supporting certain of the cards, said shelf being retractable to permit the cards to drop into said hopper part, said hopper being of sufficient length to permit the storing of a plurality of cards directly below said shelf.

4. In a device of the class described, a magazine forming a vertically disposed guideway for cards and comprising a hopper part having an outlet opening adjacent its lower end, a movable part hinged on the upper end of said hopper part so as to be tiltable with respect thereto, and a shelf mounted on said tiltable part and movable into said guideway for temporarily supporting certain of the cards, said shelf being retractable to permit the cards to drop into said hopper part, said hopper being of sufficient length to permit the storing of a plurality of cards directly below said shelf.

5. In a device of the class described, a magazine forming a guideway for cards and

having an inlet opening in one side thereof, a gate hinged on said magazine and movable into and out of position to close said opening, means for locking said gate in its closed position, other means for locking said gate in its open position, said gate being shiftable axially of its hinge for releasing it from said locking means, and a spring connected to said magazine and gate for yieldingly resisting axial movement of said gate away from said locking means.

6. In a device of the class described, a magazine forming a guideway for cards and having an inlet opening in one side thereof, a gate movable into and out of position to close said opening, a pair of hinge pins for pivotally connecting said gate to said magazine, means for locking said gate in its closed position, other means for locking said gate in its open position, said gate being shiftable axially of its hinge for releasing it from said locking means, the axial movement of said gate being effected during its swinging movement, and a spring connected to said magazine and to one of said hinge pins for yieldingly resisting axial movement of said gate away from said locking means.

7. In a device of the class described, a magazine for cards stacked vertically, said magazine having an outlet opening therein, an ejector comprising a pusher plate arranged to engage a card and move it edgewise through said openings, operating mechanism for reciprocating said pusher plate, means for connecting said pusher plate and mechanism, said means including a pair of telescoping parts having a pair of opposed shoulders, and a spring arranged to normally hold said shoulders in engagement with each other.

8. In a device of the class described, a magazine for cards stacked vertically, said magazine having an outlet opening therein, a reciprocable ejector including a pusher element adapted to engage a card and move it edgewise through said opening, said pusher element having a part for supporting the card during ejection, and a prong mounted on said pusher and projecting forwardly in advance of said supporting part for engaging an aperture in the card.

9. In a device of the class described, a magazine for cards stacked vertically, said magazine having an outlet opening therein, a reciprocable ejector including a pusher element adapted to engage a card and move it edgewise through said opening, said pusher element having a part for supporting the card during ejection, a pair of prongs mounted on said pusher and projecting forwardly in advance of said supporting part for engaging a pair of apertures in the card, and a conveyer chain having prongs adapted to engage the apertures in said cards for moving the cards away from said magazine.

10. In a device of the class described, a vertically disposed magazine for cards, said magazine having an outlet opening therein, a reciprocable ejector located below said magazine for moving the cards edgewise one at a time through said opening, a vertically adjustable gate in said opening, a horizontal guideway located outside of said magazine for receiving the ejected cards, part of said guideway adjacent said opening being vertically adjustable, and a conveyer for moving the cards along said guideway.

11. In a device of the class described, a vertically disposed magazine for cards, said magazine having an outlet opening therein, a horizontal guideway located outside of said magazine, a reciprocable ejector arranged to move the cards edgewise one at a time through said opening to a position wherein one edge of the card is supported in said guideway and the opposite edge thereof lies below said guideway, and means for lifting said opposite edge of the ejected card into the plane of said guideway.

12. In a device of the class described, a vertically disposed magazine for cards, said magazine having an outlet opening therein, a horizontal guideway located outside of said magazine, a reciprocable ejector arranged to move the cards edgewise one at a time through said opening to a position wherein one edge of the card is supported in said guideway and the opposite edge thereof lies below said guideway, conveying means located above said guideway, and means for lifting said opposite edge of the ejected card into the plane of said guideway for engagement with said conveying means.

13. In a device of the class described, a vertically disposed magazine for cards, said magazine having an outlet opening therein, a horizontal guideway located outside of said magazine, a reciprocable ejector arranged to move the cards edgewise one at a time through said opening to a position wherein one edge of the card is supported in said guideway and the opposite edge thereof lies below said guideway, conveying means located above said guideway, means for lifting said opposite edge of the ejected card into the plane of said guideway for engagement with said conveying means, and operating mechanism for actuating said ejector and lifting means.

Signed at Chicago this 28th day of May, 1928.

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