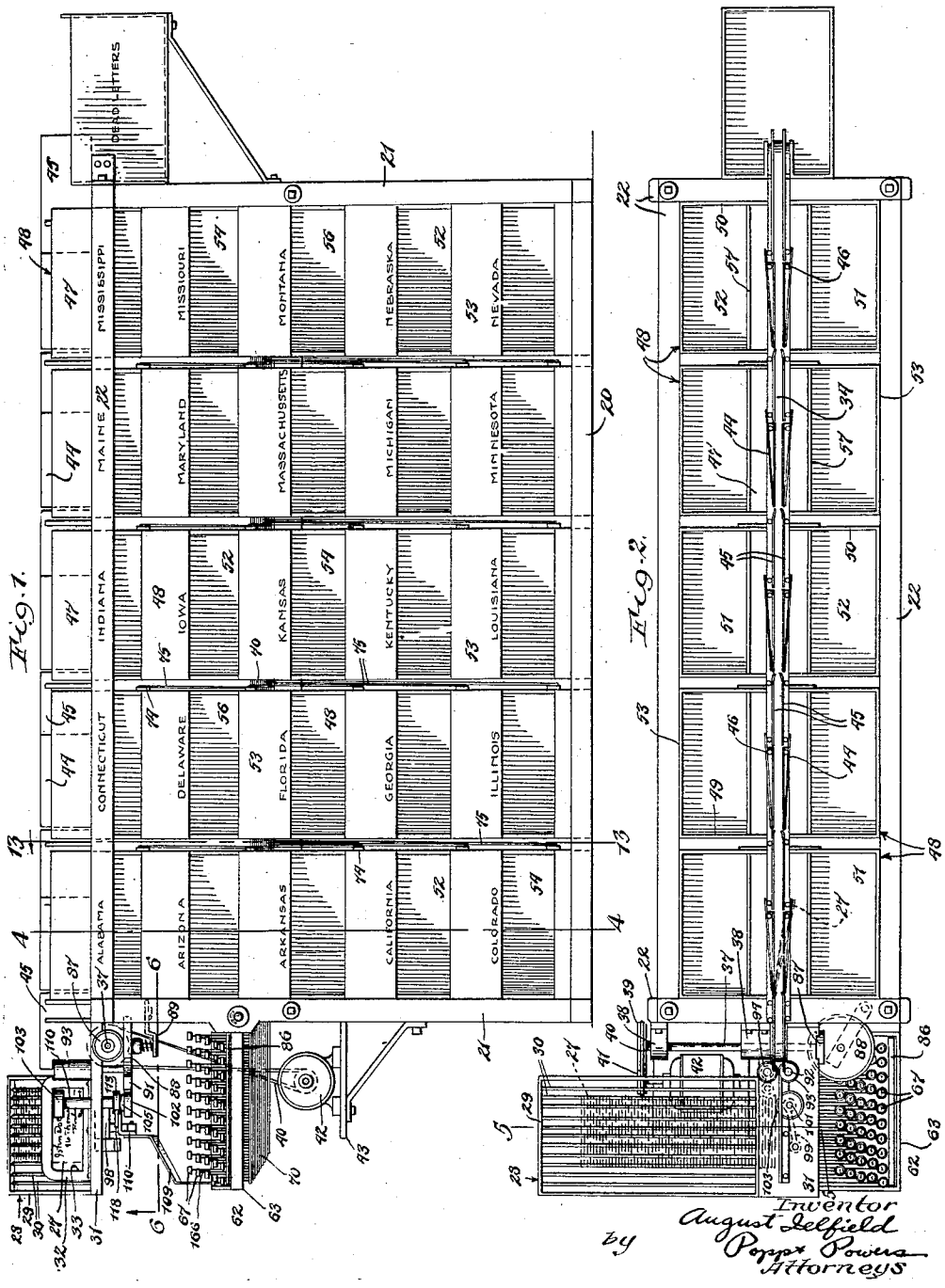
Sept. 15, 1931. A. IELFIELD 1,823,741

MAIL DISTRIBUTING MACHINE

Filed Nov. 19, 1927 5 Sheets-Sheet 1



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MAIL DISTRIBUTING MACHINE

Filed Nov. 19, 1927 5 Sheets-Sheet 2

Fig. A.

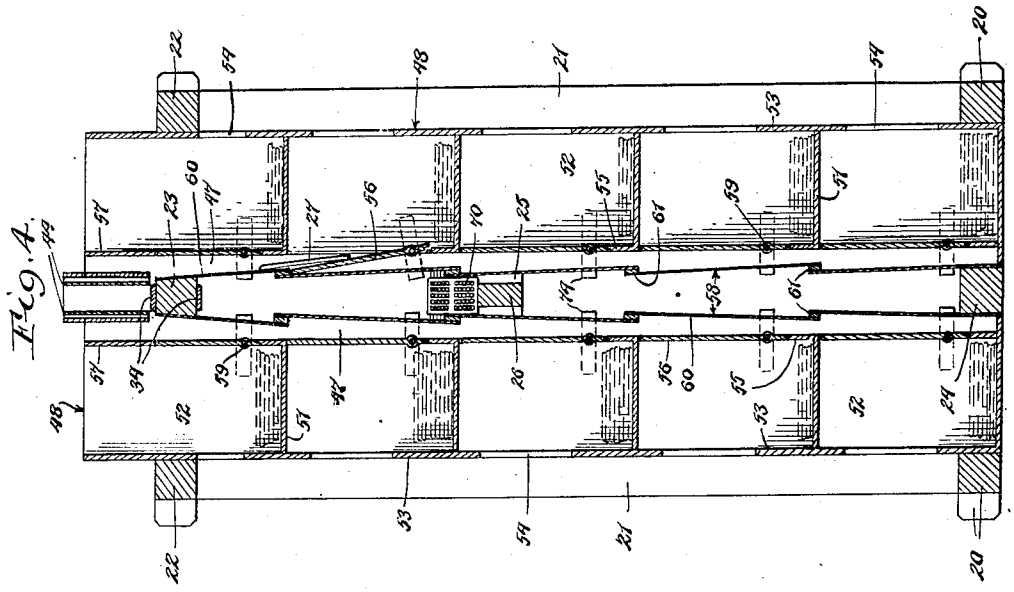
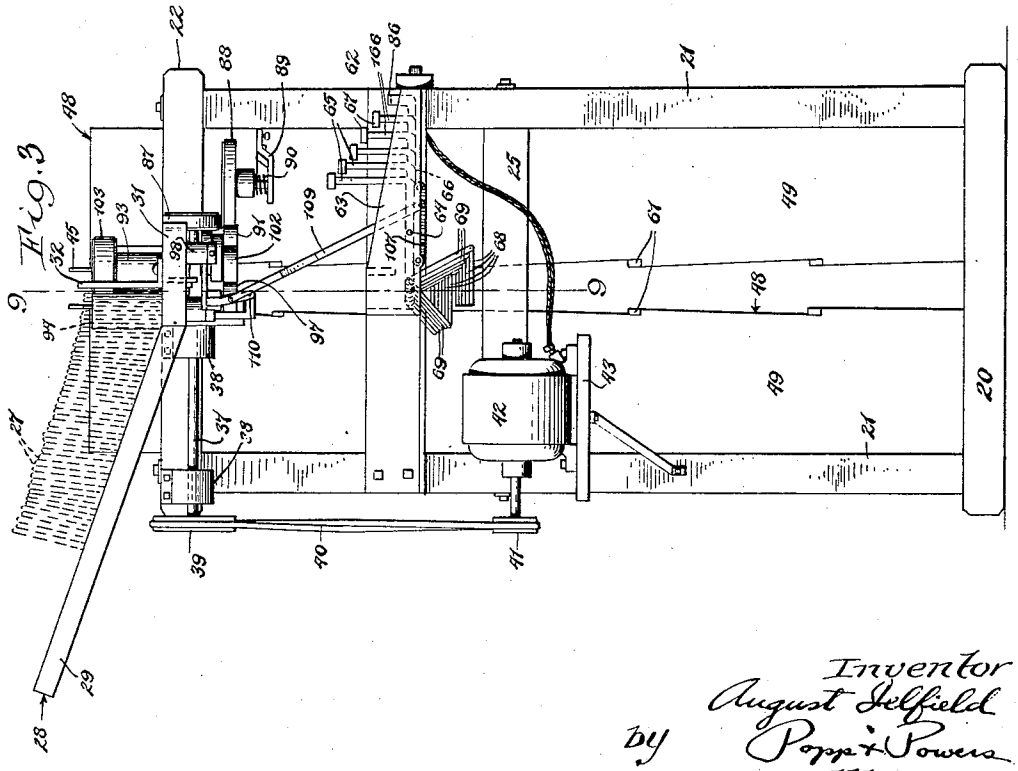


Fig. 3



Inventor
August Ielfield
by Popp & Powers
Attorneys

Sept. 15, 1931. A. IELFIELD 1,823,741

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Filed Nov. 19, 1927 5 Sheets-Sheet 3

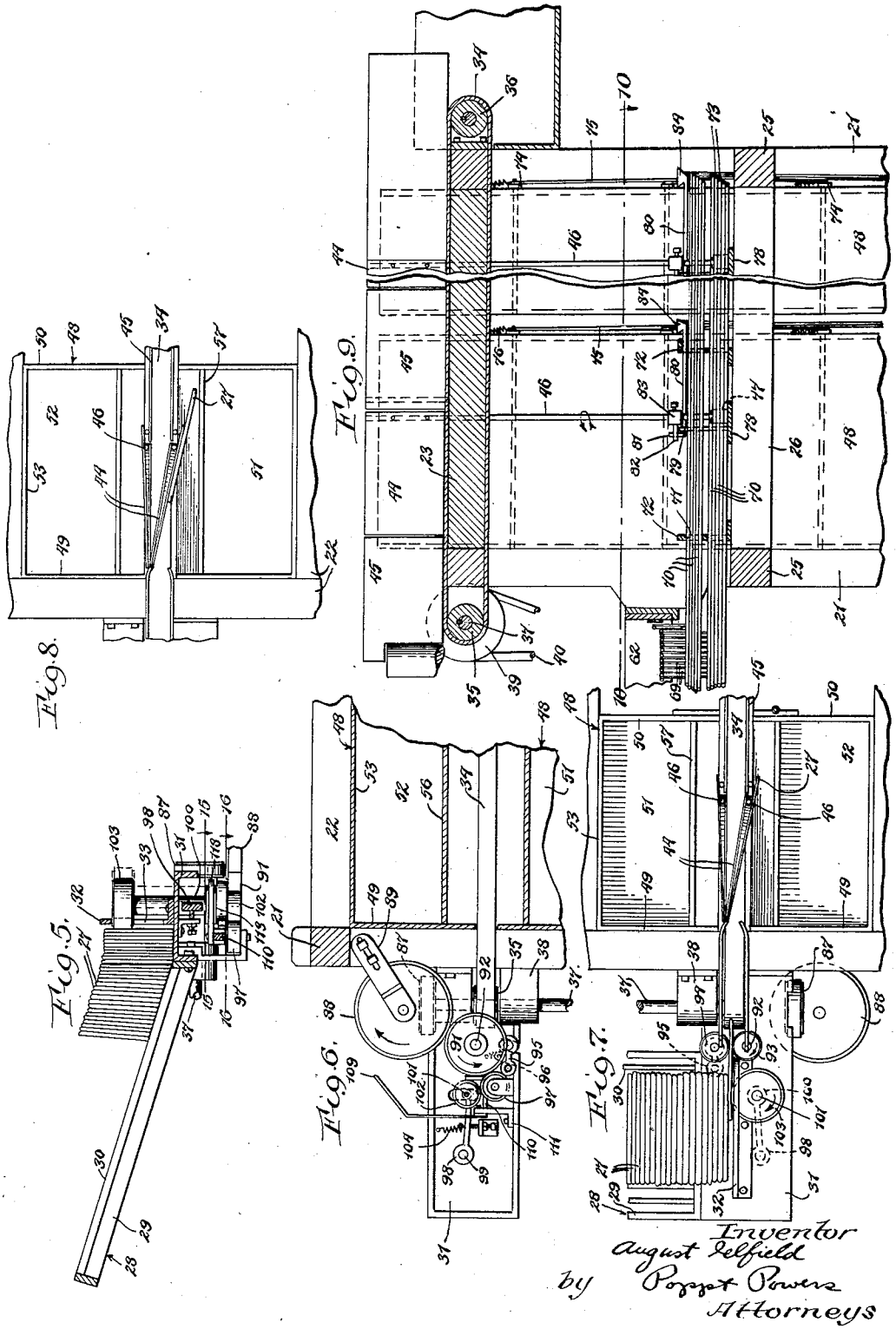


Fig. 8.

Fig. 9.

Fig. 5.

Fig. 6.

Fig. 7.

Inventor
August Ielfield
by Poppat Powers
Attorneys

Sept. 15, 1931. A. IELFIELD 1,823,741

MAIL DISTRIBUTING MACHINE

Filed Nov. 19, 1927 5 Sheets-Sheet 4

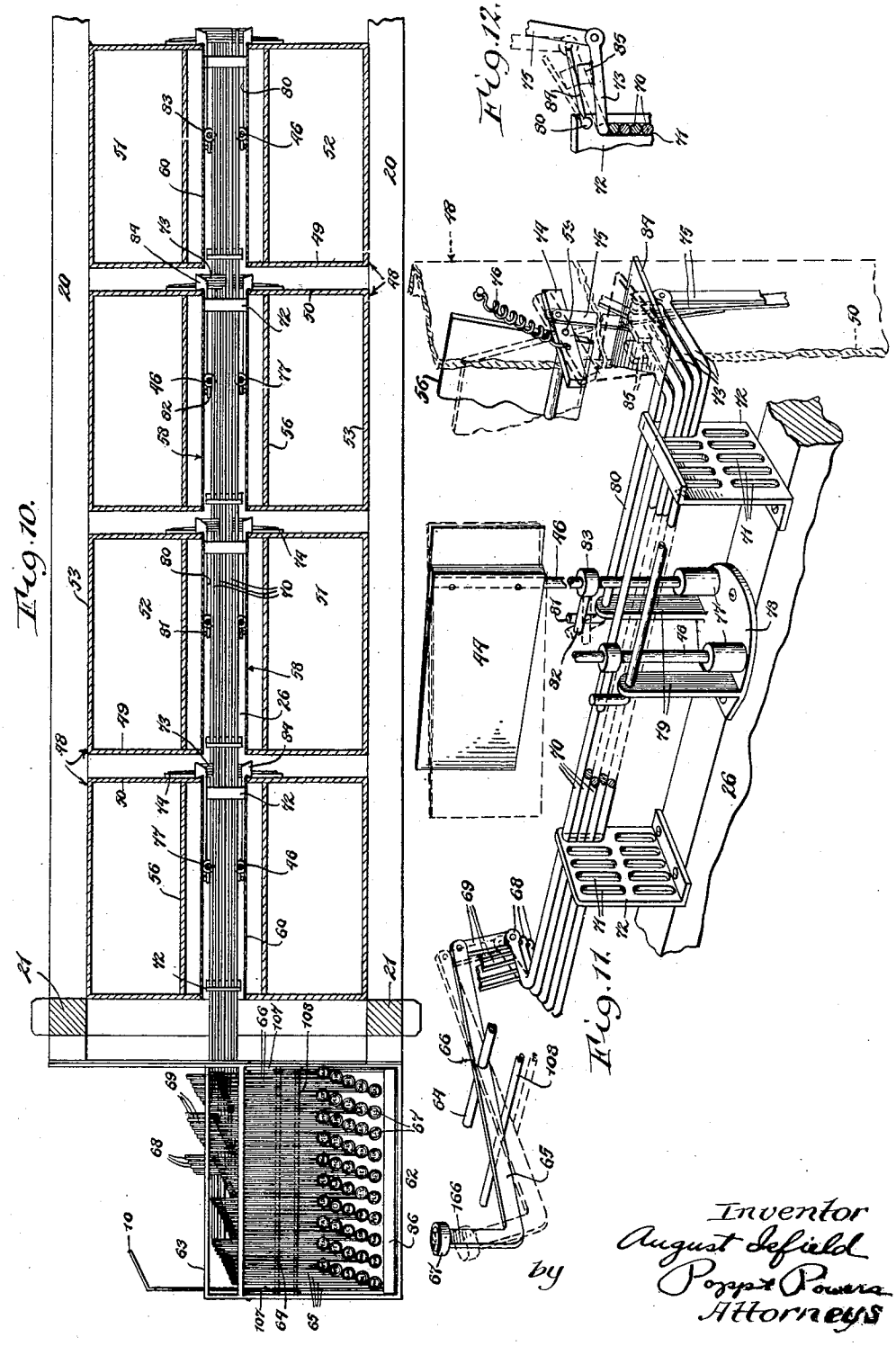


Fig. 10.

Fig. 12.

Fig. 11.

Inventor
August Ielfield
by Poppe & Powers
Attorneys

Sept. 15, 1931. A. IELFIELD 1,823,741

MAIL DISTRIBUTING MACHINE

Filed Nov. 19, 1927 5 Sheets-Sheet 5

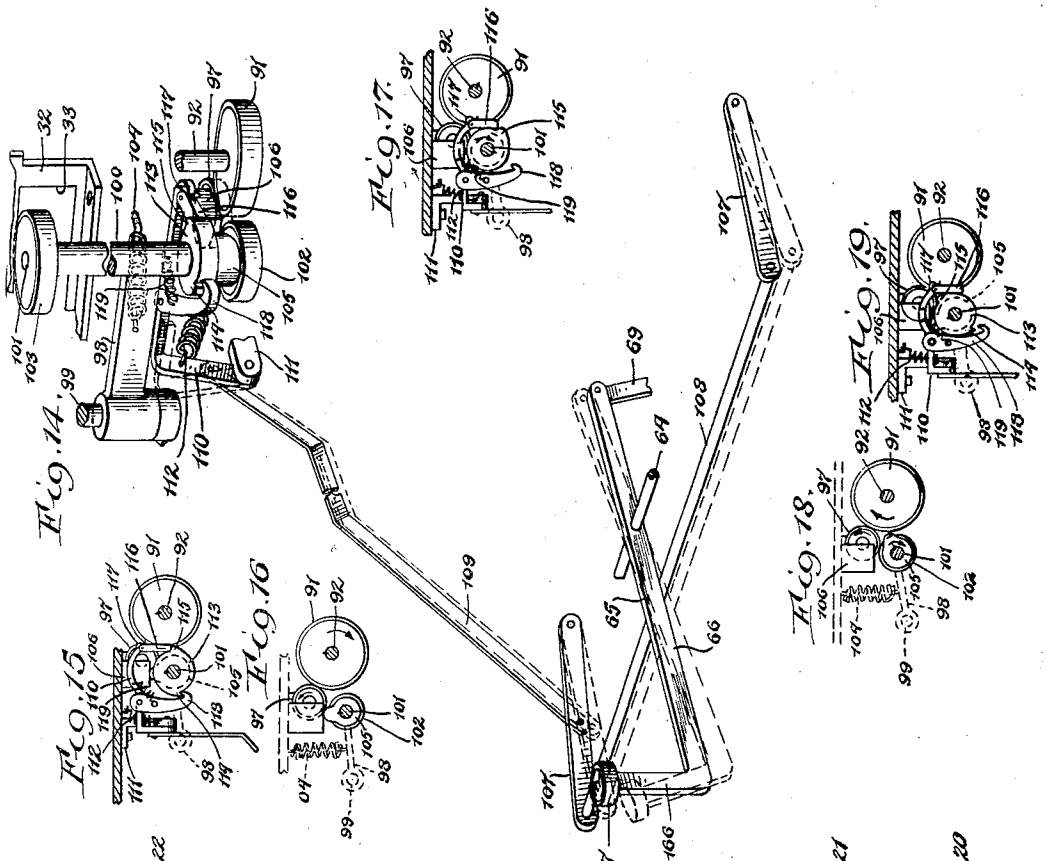


Fig. 14.

Fig. 17.

Fig. 19.

Fig. 18.

Fig. 15.

Fig. 16.

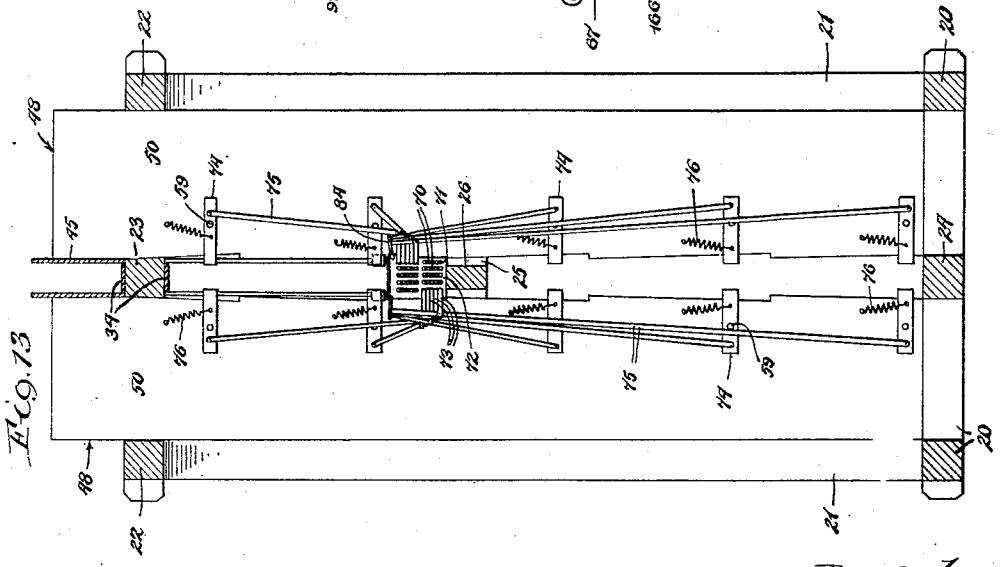


Fig. 13.

Inventor
August Ielfield
by Pogue & Powers
Attorneys

Patented Sept. 15, 1931 1,823,741

UNITED STATES PATENT OFFICE

AUGUST IELFIELD, OF SILVER CREEK, NEW YORK, ASSIGNOR TO IELFIELD POSTAL SUPPLY CO., INC., OF FORESTVILLE, NEW YORK, A CORPORATION OF NEW YORK

MAIL DISTRIBUTING MACHINE

Application filed November 19, 1927. Serial No. 234,414.

This invention relates to a machine for distributing mail matter or the like, and more particularly to a machine for selectively distributing letters or other mail matter by mechanical means into different receptacles according to the destination of such mail matter. Mail matter is now distributed by hand and the principal purpose of this invention is to produce a machine by which the distribution can be effected more expeditiously, conveniently and economically.

Another object of this invention is to provide a machine which will reliably convey each letter to its proper receptacle as determined by the operation of a keyboard, and in which the letter is conveyed rapidly to its proper receptacle, thereby avoiding the danger of its being conveyed to an improper receptacle in the event that the operator should strike a second key immediately after the letter is started on its path. This rapidity of movement in the present machine is effected by causing each piece of mail to traverse but two rectilinear paths and by maintaining the letter in a single vertical position throughout its course through the machine.

A further aim is to provide a mail distributing machine which contains a large number of receptacles, thereby permitting of a detailed assortment of the mail according to the several destinations thereof, and permitting, in one operation, a fine division of the mail matter.

Another aim is to provide such a machine in which the mail is routed by positively acting means to deliver each piece of mail to its proper receptacle, and in which the passage of the piece to an improper receptacle is positively prevented.

A still further object is to provide means for controlling the movement of each piece of mail matter which is entirely mechanical, the mechanism being actuated by the several keys of the keyboard.

Still further objects are to provide such a machine which is relatively compact, considering the function which it performs, and in which the controlling mechanism is of simple and inexpensive construction, thereby enabling such distributors to be installed and maintained in smaller post offices.

In the accompanying drawings:

Figure 1 is a side elevation of the mail distributing machine. Figure 2 is a top plan view thereof. Figure 3 is an end view thereof from the keyboard end of the machine. Figure 4 is a vertical transverse section taken on line 4—4, Fig. 1. Figure 5 is a vertical transverse section taken on line 5—5, Fig. 2. Figure 6 is a horizontal section taken on line 6—6, Fig. 1, looking upwardly. Figure 7 is an enlarged fragmentary top plan view of the letter starting or feeding mechanism and showing the letter started on its course. Figure 8 is a fragmentary view similar to Fig. 7 and showing the letter passing one of the primary gates and into one of the vertical ways. Figure 9 is a vertical fragmentary longitudinal section taken on line 9—9, Fig. 3. Figure 10 is a horizontal section taken on line 10—10, Fig. 9. Figure 11 is a fragmentary perspective view of the mechanism controlling the primary and secondary gates. Figure 12 is a fragmentary transverse section through one set of controlling rods showing in dotted lines the position of the parts when one of the rods is turned to open one of the primary and secondary gates. Figure 13 is a vertical transverse section taken on line 13—13, Fig. 1. Figure 14 is a fragmentary perspective view showing the mechanism whereby only one letter is fed to the carrier upon depressing the key. Figures 15 and 16 are horizontal sections taken on the correspondingly number lines on Fig. 5 looking downwardly and showing the position of the letter feeding mechanism before depressing a key. Figures 17 and 18 are views similar to Figures 15 and 16 respectively but showing the position of the parts after a key has been depressed and a letter is being fed to the carrier. Figure 19 is a view similar to Figures 15 and 17 and showing the position of the parts at the finish of the feeding of a letter and the feeding mechanism about to be rendered inoperative so that only one letter is fed.

Similar reference numerals refer to the same part in each of the several views.

In its general organization this invention comprises a rack adapted to support a stack of mail matter, a continuously driven horizontal belt forming a primary conveyer, a keyboard actuated mechanism for feeding one letter at a time to the conveyer belt, a series of primary or main gates arranged on opposite sides of the path of the letter carried by said belt and each being operable to deflect the letter into one of a series of vertical chutes or secondary conveyers, a series of receptacles arranged along said chutes and each having a secondary or auxiliary gate adapted to deflect the letter from the chute into the receptacle, and means controlled through the depression of the several keys of the keyboard whereby corresponding primary and secondary gates are opened to cause the letter to pass into its proper receptacle.

The main frame of the machine as illustrated consists of a plurality of base bars 20 arranged in rectangular form, four columns 21 rising from the corners of the base, upper horizontal frame bars 22 secured to the upper ends of the columns, an upper central longitudinal bar 23 extending between the upper cross bars 22, a lower central longitudinal bar 24 extending between the cross bars 20 of the base, an intermediate cross bar 25 extending between the columns 21 at opposite ends of the frame, and an intermediate central longitudinal bar 26 extending between the intermediate cross bars 25.

The supply or pile of letters 27 is supported on an inclined feed table 28 which preferably comprises a frame 29 and a plurality of longitudinal supporting rods 30. This table is bolted at its lower front end to a bracket 31 which bracket projects outwardly from the upper end cross bar 22 and on its upper side this bracket carries an abutment 32 against which the pile of letters is pressed. If desired, a follower (not shown) may be employed to press the letters against this abutment. To enable the operator to read the addresses on the letters as they are successively presented to the abutment, a large window 33 is provided in the abutment. It will be understood that the letters, cards or the like are first cancelled and in this operation are all faced to be in proper order for the distributing machine.

The letters are successively fed from the lowermost end of the stack of letters to a conveyer belt 34 which passes around pulleys 35, 36, at opposite ends of the machine, the opposite stretches thereof being arranged on opposite sides of the upper central longitudinal bar 23, as best shown in Fig. 9. This carrier belt is continuously driven at a relatively high rate of speed and for this purpose the pulley 35 is keyed to a drive shaft 37 which is journaled in bearings 38 carried by the end frame bar 22. A driven pulley 39 is mounted on the rear end of this shaft and is connected by a belt 40 with a driving pulley 41 mounted on the shaft of an electric motor 42. This motor is suitably supported on a bracket 43 projecting from the adjacent column or standard 21.

The letter is fed to the upper stretch of the belt and is rapidly conveyed thereby toward the opposite end of the sorting machine. Along each side of the path of the letter on the conveying belt and carried by the upper longitudinal central bar 23 are arranged a series of primary or main gates 44 each of which is mounted on a vertical pintle 46 and the outer end thereof is adapted to be swung into the path of the letter and deflect the letter laterally from the belt. Each of these gates is preferably composed of two pieces of sheet metal secured together at their outer ends and secured at opposite sides of the pintle at their inner ends, thereby forming a gate which is wedge-shaped in cross section to secure the uninterrupted deflection of the letter when the gate is opened. To prevent interference with the mail matter when the gates are closed, guide plates 45 are arranged longitudinally between these gates and the rear ends of these guide plates are bent inwardly to prevent the letter on the belt from coming in contact with the outer edge of the gate. If none of the gates are opened, the letter passes the full length of the upper strech of he belt and is discharged into a dead letter box which is supported at the rear end of the machine.

Each of the primary or main gates deflects the letter into a vertical conveyer or chute 47 provided in a box 48. Each of these boxes is composed of side panels 49 and 50, a plurality of horizontal shelves 51 forming receptacles or compartments 52, face panels 53 arranged to form openings 54, whereby the mail can be removed from the compartments, vertical partition walls 55 extending upwardly from the rear ends of each of the shelves, vertically swinging gates 56 at the rear ends of the compartments and swinging into the chute 47, baffles 57 at the upper inner side of each box and a rear wall 58 for the chute 47. Each of the gates 56 is fixed to a horizontal shaft 59 which is arranged immediately above the partitions 55 and the upper end of each gate is adapted to swing rearwardly to obstruct the chute and cause the falling letter to be deflected into this compartment. To prevent the upper end of each of the secondary gates 56 from engaging the mail matter and possibly tearing the same or interfering with its deflection into the compartment, the rear wall 58 of the chute 47 is composed of a series of metal sections 60 which are secured to cross bars 61 and are arranged in break joint or staggered relation to form downwardly facing shoulders below which the upper edges of the secondary gates 56 are disposed when the gate is opened, as best

shown in Fig. 4. Each box 48, therefore, forms a section which can be removed and replaced as a unit thereby facilitating the assembly of the machine and any repairs, replacements or adjustments that may become necessary.

Assuming that a letter is addressed to a post office in Kansas, the primary gate 44 for the Kansas box is swung into a position across the belt 34 and at the same time the secondary gate 56 in rear of the Kansas receptacle or compartment is swung rearwardly into a position across the chute 47. The Kansas letter, which is arranged at the lower end of the stack of letters on the feed table or rack is thereupon fed to the conveyer belt 34, is rapidly conveyed thereby until it strikes the open primary gate and is deflected into the chute 47, falls down the chute 47 until it strikes the open secondary gate and is deflected into the Kansas compartment. The gates are then closed and the next letter routed to its proper destination. By opening different combinations of primary and secondary gates, a letter may be delivered into any one of the compartments. In the machine illustrated fifty of such compartments are provided in addition to the dead letter box.

The means for selectively controlling the movement of the primary and secondary gates to selectively file the letters is preferably constructed as follows:

Below the feeding mechanism a keyboard 62 is arranged and includes a metal frame 63 which is supported by the columns 21 of the machine frame. In this keyboard frame is mounted a supporting rod 64 which pivotally supports each of the key bars 65. Each of the key bars includes a horizontal part 66 which extends to the rear end of the frame, and a vertical part 166 which supports the key 67 at its upper end. The number of keys corresponds to the number of compartments, i. e., fifty are provided in the present instance and are preferably arranged in banks and each is lettered to indicate the compartment which it controls.

The rear end of each key bar 65 is connected by a link 69 with a rearwardly extending rock arm 68 of a rock shaft 70. The rock shafts 70 are therefore fifty in number and are supported in slots 71 provided in brackets 72 which brackets are mounted on the upper side of the intermediate longitudinal central bar 26 of the frame. These rock shafts are also preferably arranged in groups, each group controlling the secondary gates of a particular box. In the machine illustrated, ten boxes, each having five compartments are provided, and the brackets 72 therefore each have ten slots 71, each containing five rock shafts 70 controlling one particular box.

Figure 11 illustrates one set or group of rock shafts and a key secured to the uppermost rock shaft, the depressed position of the key being shown in dotted lines. As best shown in Figures 10–13, the opposite end of each of the rock shafts 70 is bent to form a second rock arm 73 which extends along one side of its corresponding box 48. The horizontal shafts 59 on which the secondary gates 56 are fixed each extend through one panel 50 of the box 48, and to the projecting end thereof a rock lever 74 is secured in such manner that upon rocking the rock lever 74, the shaft 59 is turned to swing the gate 56 into and out of the chute 47. Each of these rock levers 74 is connected by a shipper bar 75 with the end of one of the rock arms 73 and it therefore follows that when a particular key 67 is depressed, the corresponding rock shaft 70 will be turned, its rock arm 73 will be elevated, the shipper bar 75 associated therewith shifted vertically and the rock lever 74 turned to move the corresponding gate 56 to its open position. Upon releasing the key, these parts are returned to their normal position by a spring 76 which is secured at one end to the rock lever 74 and at its other end to an adjacent part of the panel 50. Inasmuch as the rock shafts 70 are arranged centrally of the machine, the shipper bars 75 are of different lengths, and those controlling the secondary gates 56 above the rock shafts extend upwardly and those below these rock shafts extend downwardly as best shown in Fig. 13.

Each time any one of the secondary gates is opened, it is necessary, of course, to open the primary gate 44 which deflects the letter into the box with which the particular secondary gate is associated, and for this purpose the operation of any one of the group of rock shafts effects the opening of the companion primary gate through a mechanism which is preferably constructed as follows:

The pintle 46 to which each primary or main gate 44 is secured extends downwardly and is journaled at its lower end in a bearing 77 which bearing is integral with a bracket 78 mounted on the central longitudinal bar 26. This bracket is also former to provide stanchions 79 which rise from the bracket on opposite sides of the rock shafts 70 and form bearings for a longitudinally extending tappet rod 80. At its rear end this tappet rod is bent laterally to form a tappet arm 81 and this arm engages a laterally projecting pin 82 on a collar 83 which collar is suitably secured to the pintle 46 of the main gate 44. At its rear end this tappet rod 80 extends over the rock arms 73 of the group of rock shafts with which it is associated and is formed to provide an outwardly projecting wing 84 which extends beyond the ends of each of the rock levers 73 and is raised by the upward movement of any of them. By this means the upward movement of any of the rock levers 73 in opening a secondary or auxiliary gate, causes the wing 84 to be engaged and

lifted, thereby rocking the tappet rod 80, moving the tappet arm 81 and tappet pin 82 inwardly, and thereby rotating the pintle 46 to move the gate into the path of the letter to deflect it into its proper chute. In order to elevate the wing 84 a definite distance each time that the rock arms 73 are raised, the shipper bars 75 which extend downwardly from the rock arms 73 are extended upwardly beyond these rock arms to engage the wing 84, and on those rock arms 73 from which the shipper rods 74 extend upwardly, lugs 85 are provided to engage the wing as best shown in Figs. 11 and 12. In the normal position of the parts, the upper ends of these lugs 85 and the downwardly extending shipper rods 75 are in horizontal alinement so that raising any one of them to open the auxiliary gates causes a predetermined movement of the wing 84 and consequently of the main or primary gate 44. Any suitable spring means (not shown) may be employed for normally holding the main or primary gates 44 in a closed position.

It will be apparent that any number of boxes and any number of compartments may be employed inasmuch as an increase in the number of the same involves only a duplication of the control system illustrated in Fig. 11.

Means are provided for feeding the lowermost letter to the carrier belt 34 upon the depression of any one of the keys or the dead letter bar 86, which means operates to feed one letter and then returns to its normal inoperative position preparatory to the depression of the next key in routing the next succeeding letter. This feeding means best illustrated in Figs. 1, 2, 3, 5, 6, 7, and 14–19, and is preferably constructed as follows:

On the front end of the continuously operated shaft 37 is a friction driving pinion 87 provided with peripheral elastic driving surface which engages the upper face of a horizontal gear 88. This gear is provided with elastic driving surfaces on its upper and peripheral faces and is adjustably supported from the frame by an arm 89, as best shown in Figs. 3 and 6. To yieldingly hold the friction gear 88 in engagement with the pinion 87, a spring 90 is preferably interposed between the gear 88 and its supporting arm 89. This friction gear 88 in turn engages and drives a friction pinion 91 as shown in Fig. 6, which pinion 91 is fastened to a vertical shaft 92. This shaft 92 is journaled in the bracket 31 and at its upper end carries and drives an elastic surfaced friction roller 93 which is adapted to engage the letter fed to it. The letter is fed between this roller 93 and an idler 94, this idler being preferably carried by a horizontally swinging arm 95 and being yieldingly held against the roller 93 by a spring 96. It therefore follows that when the letter is fed between the roller 93 and its idler 94, the same is engaged and shot onto the conveyer belt.

To effect the initial movement of the lowermost letter from the stack on the feed table, a mechanism is provided which is preferably constructed as follows:

A friction pinion 97 is suitably mounted on the bracket 31 and engages the periphery of the pinion 91 and is thereby continuously rotated. As best shown in Figs. 6 and 14, an arm 98 is mounted by a bolt 99 to the under side of the bracket 31 and the outer end of this arm is movable toward and from the pinion 97. A sleeve 100 is carried at the outer end of the swinging arm 98 and journals a vertical shaft 101 at the lower end of which shaft is fixed a friction pinion 102 which is engageable with the continuously driven friction pinion 97. At its upper end this shaft carries a feeding wheel 103 which has a facing of rubber or the like and is engageable with the lowermost letter in the stack through the window 33 in the abutment 32. When the arm 98 is moved inwardly, the friction pinion 102 engages the driving friction pinion 97, and thereby rotates the shaft 101 and the feeding wheel 103, and at the same time the feeding wheel is brought in contact with the face of the lowermost letter in the stack so that the letter is moved lengthwise to the feeding rollers 93 and 94. A spring 104 between the arm 98 and the bracket 31 tends to hold the feeding wheel 103 against the letter; and to hold the wheel normally away from the letter, a cam 105 having a salient portion is fixed to the shaft 101 and engages a block 106 which is mounted on the bracket. When the salient portion of the cam 105 engages the block 106, the arm 98 and feeding wheel 103 are held away from the stack of letters and consequently no feeding of the same occurs. When, however, the cam is turned, the receding portion thereof engages the block and the feeding wheel is moved by the spring 104 toward the stack of letters to feed the lowermost letter to the feeding rollers.

To effect this initial movement of the cam every time a key bar is depressed, a feed control is provided which includes two arms 107 which are pivoted at their rear ends to the inner sides of the key board frame and at their outer ends carry a cross bar 108 which extends under the front ends of the key bars 65 and is depressed each time a key is depressed. One of the arms 107 is pivotally connected to a shipper bar 109 which extends upwardly and rearwardly and is pivotally connected at its other end to an L-shape bar 110. This L-shaped bar 110 is pivotally mounted at its lower end on an extension 111 projecting forwardly from the bracket 31. This L-shaped bar 110 extends upwardly and laterally in rear of the swinging shaft 101 carried by the swinging arm 98. A spring 112 between the

L-shaped bar 110 and the bracket 31 normally holds this L-shaped bar rearwardly and also holds the cross bar 108 and the front ends of the key bars in an elevated position.

Immediately in front of the L-shaped bar 110, a ratchet wheel 113 is fixed to the swinging shaft 101 and has two oppositely located ratchet teeth 114, 115 which face opposite to the direction of rotation of the shaft and ratchet wheel. The ratchet tooth 115 is engaged by a propelling dog 116 which is pivotally mounted at the outer end of the L-shaped bar 110 and is held against the ratchet wheel 113 by a flat spring 117 which is secured to the rear side of the L-shaped lever 110 and engages the outer side of the dog 116. Assuming the salient portion of the cam 105 to be engaging the block 106, as shown in Figs. 15 and 16, upon depressing any key bar, the cross bar 108 is depressed, and the L-shaped bar 110 is moved forwardly by the arm 107, and shipper bar 109. This causes the propelling dog 116 engaging the tooth 115 to move the ratchet wheel 113 and thereby cause the salient portion of the cam 105 to ride off of the block 106, thereby permitting the swinging arm to swing inwardly and cause its friction pinion 104 to engage the continuously rotating friction driving pinion 97, and also cause the letter feeding wheel 103 to engage the lowermost letter of the stack of letters on the feed table and thereby feed said letter toward the feeding rollers 93, 94. The feeding of the roller 103 continues until the salient portion of the cam 105 rides up on the block 106 and again moves the arm 98 away from the driving pinion 97 and the stack of letters. By this means only one revolution of the feeding wheel is made each time a key is depressed and only one letter fed to the machine, and it will also be observed that the feeding of a single letter is independent of the length of time the operator holds a key in a depressed position since the propelling dog 116 is not brought back into a position to initiate the movement of the ratchet wheel 113 until the key is released. To further insure against the retrograde movement of the ratchet wheel 113 and shaft 101 a holding dog 118 is pivotally mounted on the L-shaped arm 110 and engages the tooth 114 on the ratchet wheel 113. This holding dog is held against the ratchet wheel by a spring 119.

The dead letter bar 86 arranged at the lower end of the bank of keys is similar to the key bars except that it has no operative connection with the gate control mechanism. It therefore follows that when an address is illegible, the operator presses this bar, the letter is fed to the machine in the manner described, but since none of the gates are opened, the letter is conveyed through the machine by the belt 34 and deposited in the dead letter box at the other end of the machine.

Operation

The operation of the machine may be summarized as follows:

The elements which are continuously rotated by the motor 42 include the drive shaft 37, conveyer belt 34, friction pinion 87, friction gear 88, friction pinion 91, and its shaft 92 and the feed roller 93 carried thereby, and the pinion 97.

The movement of the parts which cooperate with these continuously rotating parts is effected simultaneously by the depression of any one of the keys. Upon pressing the key to route the lowermost letter in the stack to its proper compartment, (see Fig. 14) the cross bar 108 is depressed, the shipper bar 109 drawn forwardly, and the L-shaped arm 110 is moved forwardly. This movement causes the starting dog 116 to rotate the ratchet 113 forwardly thereby rotating the shaft 101 and causing the salient portion of the cam 105 to ride off of the block 106. The spring 104 thereupon pulls the swinging arm 98 rearwardly causes the friction pinion 102 fixed on the shaft 101 to engage the continuously rotating friction pinion 97 thereby turning the shaft 101 and causing the feeding wheel 103 to turn. In the operative position of the arm 98, this feeding wheel engages the face of the lowermost letter of the stack of letters and the letter is therefore shifted longitudinally and fed between the feeding rollers 93 and 94 which project it onto the conveyor belt 34. As soon as the shaft 101 and the cam, ratchet wheel, friction pinion and feeding wheel carried thereby complete one revolution, the salient portion of the cam 105 rides up on the block 106 and moves the arm 98 forwardly into its inoperative or normal position. By this means only one letter is fed when a key is depressed.

The depression of the key 67 (see Fig. 11) also causes the link 69 pivoted at the rear end thereof to be elevated thereby raising the rock arm 68 at the end of the rock shaft 70 associated therewith and also the rock arm 73 at the other end of this rock shaft. The elevation of this last rock arm 73 raises the shipper bar 75 connected thereto, rotates the arm 74 on the secondary gate shaft 59 and causes the associated secondary gate to be swung inwardly into the chute 47. At the same time, the movement of the rock arms 73 causes the wing 84 to be raised, the tappet rod 80 and tappet arm 81 to be rotated, which movement of the tappet arm 81 causes the inward movement of the pin 82 on the main or primary gate pintle 46. This pintle is thereby rotated to swing the primary gate 44 across the conveyer belt 34. The letter which was fed onto the conveyer belt 34 engages the open primary gate 44, and is deflected into the chute 47. Falling down the chute 47, it engages the open secondary gate and is deflected into its proper

receptacle. Upon releasing the key the return springs return the parts to their normal positions preparatory to the reading and routing of the next succeeding letter in the stack on the feed table.

It will be noted that in its movement along the primary conveyer or conveyer belt 34 and along the secondary conveyers or chutes 47, the letter is at all times retained in a vertical position, and merely deflected laterally by the primary and secondary gates which serve to transfer it from the primary conveyer to the secondary conveyer and from the secondary conveyer to the receptacles. By this means the movement of the letter through the machine can be effected rapidly and expeditiously thereby enabling the distribution of letters as fast as the operator is able to read the addresses.

As a whole the machine embodying this invention is comparatively simple in construction and operation considering the function which it performs, it is reliable and positive in operation, it is compact, it is readily accessible for repairs or adjustments, it provides a large number of compartments thereby providing for a fine division of the mail matter, and it operates to quickly despatch a letter to its proper compartment thereby speeding up the operation of sorting and routing mail.

I claim as my invention:

1. In a mail distributing machine, a continuously movable horizontal belt having an upper and a lower stretch, means for feeding a letter in a vertical position to the upper stretch of said belt, a plurality of guards arranged in spaced relation along opposite sides of the upper stretch of said belt and cooperating to maintain the vertical position of said letter, the rear ends of each of said guards projecting inwardly over said belt, a plurality of primary gates arranged between said guards and pivotally mounted to swing about vertical axes, a vertical chute associated with each of said primary gates, a plurality of receptacles associated with each of said chutes, a secondary gate associated with each of said receptables and adapted to deflect the letter from the chute into the receptacle, the front end of each of said primary gates being normally arranged immediately in rear of the inwardly projecting rear end of one of said guards, and being movable to an open position in which its front end is arranged in rear of the inwardly projecting rear end of a guard on the opposite side of the belt, and means for selectively actuating said gates to effect the discharge of said letter into one or another of said receptacles.

2. In a distributing machine, a frame including a longitudinal central bar, a horizontal conveyer belt the opposite stretches of which are disposed along the upper and lower sides of said bar, means for feeding an article to the upper stretch of said conveyer belt, means carried by said bar for retaining said article on said belt, gates carried by said bar and movable to extend across said belt to deflect the article laterally therefrom, and means for selectively controlling the movement of said gates.

3. In a distributing machine, a frame including a longitudinal central bar, a horizontal conveyer belt the opposite stretches of which are disposed along the upper and lower sides of said bar, means for feeding an article to the upper stretch of said conveyer belt, a plurality of boxes removably mounted on said frame along opposite sides of said belt, each of said boxes being constructed to provide a vertical chute in its rear part and a tier of receptacles in its front part, means for deflec.ing said article from said belt into one or another of said chutes, means for deflecting the article from the chute into one or another of said receptacles, and means for selectively actuating said deflecting means.

4. In a distributing machine, feeding means, a primary distributing mechanism, a plurality of secondary distributing mechanisms associated with said primary distributing mechanism, means for selectively actuating said secondary distributing mechanisms, and means for actuating said primary distrbuting mechanism through motion derived from said secondary distributing mechanisms.

5. In a mail sorting machine, a primary conveyer, a plurality of secondary conveyers, a plurality of primary gates adapted to deflect the article from said primary conveyer into said secondary conveyer, a plurality of receptacles, a secondary gate associated with each of said receptacles and adapted to deflect said article from the secondary conveyer into said receptacle, means for selectively opening each of said secondary gates, and means actuated through motion derived from said secondary gate opening means for opening the associated primary gate.

6. In a distributing machine, a primary conveyer, a plurality of secondary conveyers, a plurality of receptacles associated with each of said secondary conveyers, primary means for transferring the article from said primary conveyer to said secondary conveyers, a secondary means associated with each of said receptacles for transferring the article from the secondary conveyers into said receptacles, a rock shaft operatively connected with each of said secondary transfer means and actuating the same, means for actuating the corresponding primary transfer means through motion derived from said rock shafts, and means for selectively actuating said rock shafts.

7. In a distributing machine, a primary conveyer, a plurality of secondary conveyers, a plurality of receptacles associated with

each of said secondary conveyers, primary means for transferring the article from said primary conveyer to said secondary conveyers, a secondary means associated with each of said receptacles for transferring the article from the secondary conveyers into said receptacles, a rock shaft operatively connected with each of said secondary transfer means and actuating the same, means for actuating the corresponding primary transfer means through motion derived from said rock shafts, and means for selectively actuating said rock shafts, comprising a keyboard, and means operatively connecting the several keys with each of said rock shafts.

8. In a distributing machine, a horizontal conveyer, at least one chute arranged adjacent said conveyer, a pintle rotatably mounted adjacent the upper end of said chute, a primary gate fixed to said pintle and adapted to be moved across said conveyer to deflect the article from said conveyer to said chute, a plurality of receptacles associated with said chute, a horizontal shaft adjacent each of said receptacles, a secondary gate fixed to each of said shafts and movable across said chute to deflect the article from said chute into the corresponding receptacle, an arm fixed to each of said secondary gate shafts, a plurality of rock shafts, a pair of rock arms on each of said rock shafts, a shipper bar connecting each of the rock arms at the corresponding ends of said rock shafts with one of the arms fixed to said secondary gate shafts, a keyboard, a link connecting each key bar with one of the rock arms at the other ends of said rock shafts, spring means for holding said secondary gates in a normally closed position, and means for opening said primary gate through motion derived from said first named rock arms.

9. In a distributing machine, a horizontal conveyer, at least one chute arranged adjacent said conveyer, a pintle rotatably mounted adjacent the upper end of said chute, a primary gate fixed to said pintle and adapted to be moved across said conveyer to deflect the article from said conveyer to said chute, a plurality of receptacles associated with said chute, a horizontal shaft adjacent each of said receptacles, a secondary gate fixed to each of said shafts and movable across said chute to deflect the article from said chute into the corresponding receptacle, an arm fixed to each of said secondary gate shafts, a plurality of rock shafts, a pair of rock arms on each of said rock shafts, a shipper bar connecting each of the rock arms at the corresponding ends of said rock shafts with one of the arms fixed to said secondary gate shafts, a keyboard, a link connecting each key bar with one of the rock arms at the other ends of said rock shafts, spring means for holding said secondary gates in a normally closed position, and means for opening said primary gate through motion derived from said first named rock arms, comprising a tappet shaft, a wing at one end of said tappet shaft and arranged in the path of said first named rock arms, a tappet arm on said tappet shaft and a laterally projecting pin mounted on said pintle and adapted to be engaged and moved by said tappet arm.

10. In combination with a mail distributing machine, a feeding mechanism including a feeding table adapted to support a stack of letters, an abutment for said stack, a continuously rotating driving wheel, an arm pivotally mounted to swing toward and from said stack, a shaft carried by said arm, a feeding wheel fixed to said shaft, a pinion fixed to said shaft, said feeding wheel being adapted to engage one of the letters in said stack at the same time that said pinion engages said driving wheel, means normally tending to hold said arm in an inoperative position, a keyboard, and means actuated through motion derived from the key bars for moving said arm into operative position.

11. In combination with a mail distributing machine, a feeding mechanism including a feeding table adapted to support a stack of letters, an abutment for said stack, a continuously rotating driving wheel, an arm pivotally mounted to swing toward and from said stack, a shaft carried by said arm, a feeding wheel fixed to said shaft, a pinion fixed to said shaft, said feeding wheel being adapted to engage one of the letters in said stack at the same time that said pinion engages said driving wheel, means normally tending to hold said arm in an inoperative position, a keyboard, and means actuated through motion derived from the key bars for moving said arm into operative postion, comprising a stationary block, a cam fixed to said shaft and having a salient portion normally engaging said block and holding said arm in inoperative position, and means actuated by said key bars for effecting the release of said salient portion from said block.

12. In combination with a mail distributing machine, a feeding mechanism including a feeding table adapted to support a stack of letters, an abutment for said stack, a continuously rotating driving wheel, an arm pivotally mounted to swing toward and from said stack, a shaft carried by said arm, a feeding wheel fixed to said shaft, a pinion fixed to said shaft, said feeding wheel being adapted to engage one of the letters in said stack at the same time that said pinion engages said driving wheel, means normally tending to hold said arm in an inoperative position, a keyboard, and means actuated through motion derived from the key bars for moving said arm into operative position,

comprising a stationary block, a cam fixed to said shaft and having a salient portion normally engaging said block and holding said pinion and feeding wheel out of engagement with said driving wheel and stack of letters, respectively, a ratchet wheel fixed to said shaft, a dog engaging said ratchet wheel and means actuated by said key bars for moving said dog to turn said ratchet wheel, whereby the salient portion of said cam is released from said block and said shaft is permitted to turn one revolution before the salient portion of said cam again engages said block and renders the feeding mechanism inoperative.

13. In a distributing machine, a horizontal conveyer, a plurality of chutes arranged on opposite sides of said conveyer, means for feeding an article to said conveyer, a primary deflector associated with each chute and adapted to be moved across said conveyer into the path of the article conveyed thereby to deflect said article into the corresponding chute, a plurality of compartments associated with each chute, a secondary deflector associated with each compartment and adapted to be moved across its chute to deflect the article from said chute into said compartment and means for selectively actuating said deflectors to deflect an article on said conveyer into any desired compartment comprising movable members arranged between said chutes under said conveyer, means operatively connecting each of said members with a corresponding set of primary and secondary deflectors, a keyboard at one end of said conveyer and means operatively connecting each of said members with a key of said keyboard.

In testimony whereof I hereby affix my signature.

AUGUST IELFIELD.