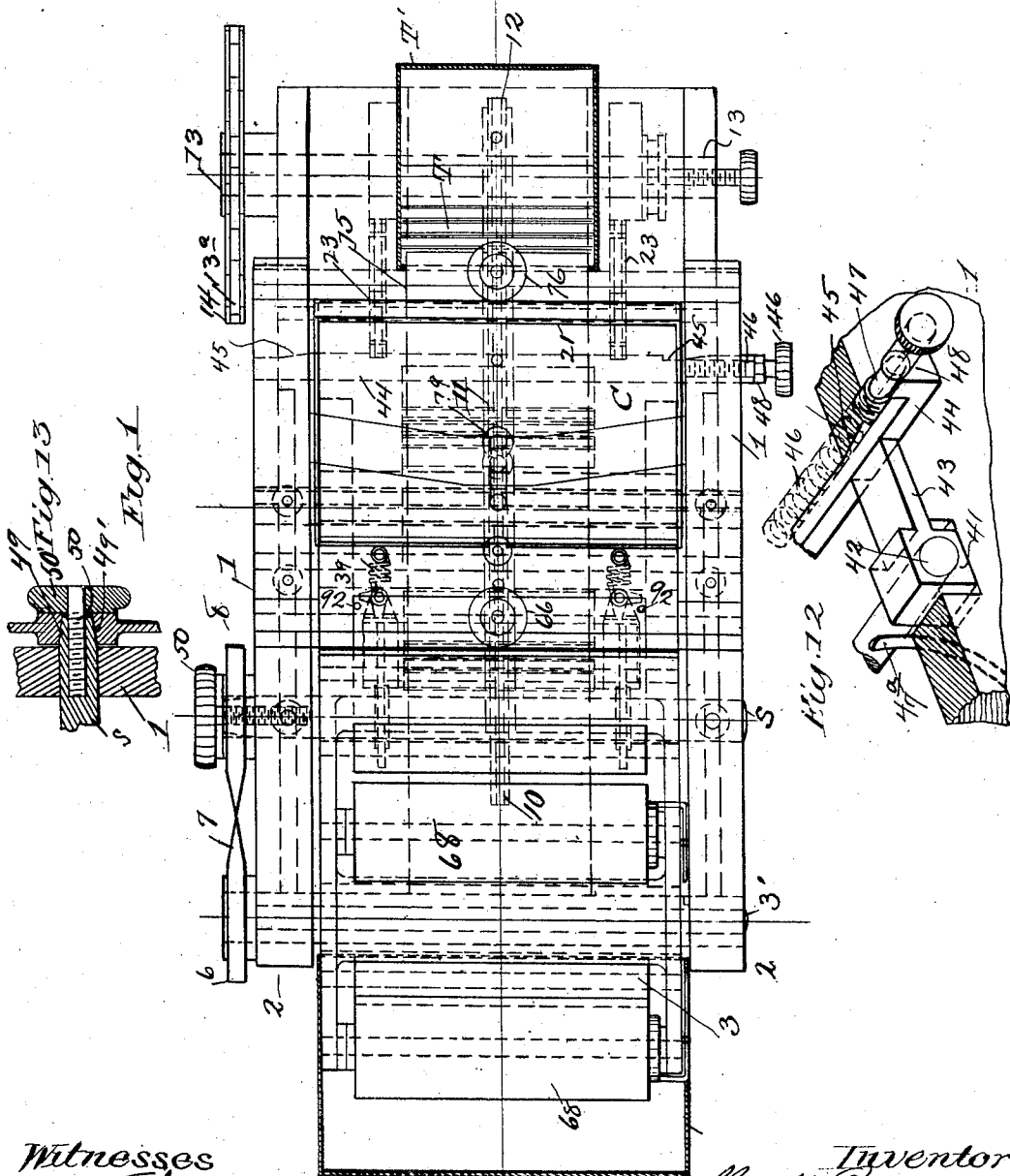


C. M. RUNYAN.
 COMBINED PRINTING AND ADDRESSING MACHINE.
 APPLICATION FILED DEC. 24, 1910.

1,025,926.

Patented May 7, 1912.

3 SHEETS—SHEET 1.



Witnesses
 M. N. Fabrenbach.
 C. B. Harris.

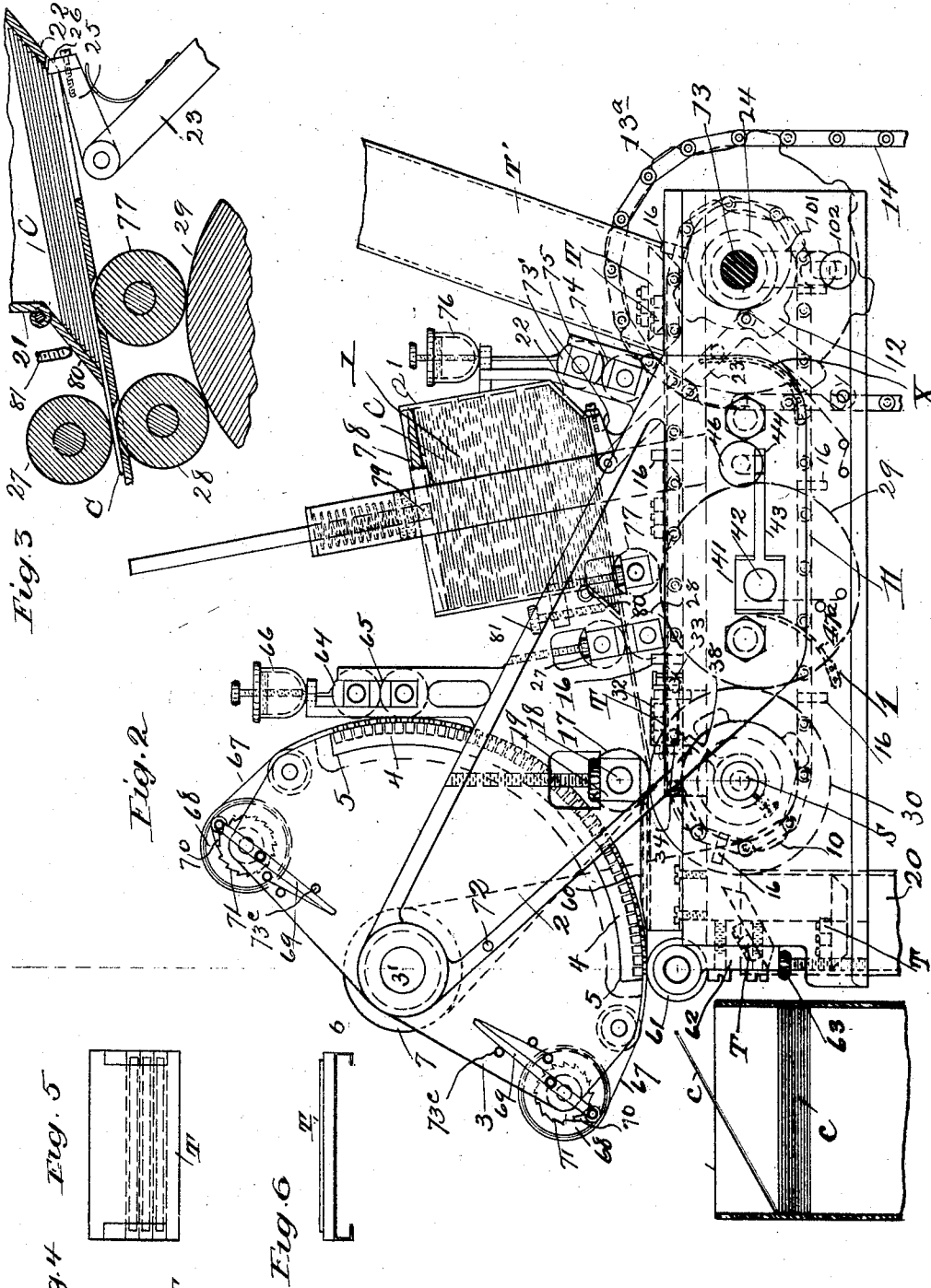
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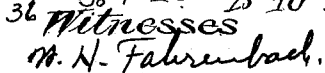


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1,025,926.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CLAY M. RUNYAN, OF LAKEWOOD, OHIO.

COMBINED PRINTING AND ADDRESSING MACHINE.

1,025,926.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed December 24, 1910. Serial No. 599,139.

To all whom it may concern:

Be it known that I, CLAY M. RUNYAN, a citizen of the United States, and resident of Lakewood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Combined Printing and Addressing Machines, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of the invention are to provide a combined printing and addressing machine for printing successively upon both sides of a card or sheet of paper. This machine includes the employment of a movable swinging or roller upper type holder, a series of detachable type holders, a receptacle for cards, a receptacle for lower type holders and automatically acting feeding mechanism for the cards, and for the lower type holders, automatically acting inking devices for the upper and lower type holders, and means for adjusting the card feeding devices to feed the cards to a predetermined printing position relative to the position of the lower type holders in the machine, so that the exact width of the margin on each side of the impression can be regulated and an adjusting means for positioning the upper type holder to determine the exact position of the printing impression on the upper side of the card or sheet, relatively to the margin.

The invention further provides means for giving a continuous rolling pressure upon the type whereby one line at a time only is printed, and thereby a perfectly clear impression is produced and also includes means for printing each side of the card or sheet separately or independently of the other and provides means for spacing the printed matter on one side of the card or sheet relatively to the printed matter on the other side thereof.

The invention includes mechanism for operating all parts from a common operating shaft, the receptacles for cards and lower type holders in which the said cards and lower type holders fall by gravity, means for applying pressure to the pile of

cards in receptacle and for feeding the cards under the opposed pressure thereof.

It also consists in the form of operating mechanism and detail of construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings and specifically pointed out in the claims.

In the accompanying drawings Figure 1 is a plan view of the machine; Fig. 2 is a side elevation thereof; Fig. 3 is a longitudinal section of the lower part of the card receptacle showing card feed mechanism; Fig. 4 is an edge view of one of the lower type holders; Fig. 5 is a plan view thereof; Fig. 6 is a side elevation thereof; Fig. 7 is a longitudinal section on line $x-x$ Fig. 8, of a portion of the machine showing the upper type holder, one of the lower type holders, the pressure rollers and inking device for the lower type holders; Fig. 8 is an end elevation of the machine; Fig. 9 is a plan view of one of the rollers for the inking ribbon for the lower type holders; Fig. 9^a is an enlarged view of the pawl shown in Figs. 9 and 11; Fig. 10 is an end view and Fig. 11 a side elevation of a ratchet mechanism hereinafter described; Fig. 12 is a perspective view of the adjusting means for the friction roller which operates the card feeding rollers; Fig. 13 is a longitudinal section of the taper end of the shaft for the upper type holder; the socket therefor in the sprocket wheel and clamping nut by means of which the position of the upper type holder can be adjusted; Fig. 14 is a transverse section of bed plate showing the sprocket chain passing through a central longitudinal groove in the bed plate and also showing one of the lower type holders engaged by a pin thereon. It also shows a transversely movable inking ribbon for the lower type holders and rollers on which the ribbon is wound and supports therefor, and means for moving the roller supports forward so that the ribbon will accompany the type on the lower type holder as it moves underneath the printing roller.

In these views 1 is the frame or bed plate of the machine, 2, 2, are arms projecting toward the front of the machine upon which is pivotally mounted a segment or

roller 3 on a shaft 3' having the type holder 4 inserted in a dove tailed recess 5 therein for removal or substitution. This type holder is continuously rotated by means of the wheel 6 and flexible connecting means 7 passing over the wheel 8 on an intermediate shaft S which is in turn operated preferably by means of the sprocket wheel 10 and chain 11, and sprocket wheel 12 on the main actuating shaft 13 which is driven in turn by means of the wheel 13^a and chain 14.

The lower type holders T, T are piled within the receptacle T' and fall by gravity upon a longitudinally raised platform 15 in the bed plate, and are engaged in turn by means of lugs 16, 16 upon the chain 11 which traverses a longitudinal groove 15² in said platform having guide edges 15' for said lower type holder, and are carried to the front of the machine to a printing position between the bed plate and an impression roller 17, mounted upon a shaft 18 in an adjustable bearing 19. And the lower type holders are discharged from the chain as it passes over the sprocket wheel 10 and fall into a receptacle 20 at the front of the machine.

The cards C are deposited in a preferably inclined receptacle 21 or one having the lower portion of the rear wall inclined at 22, so that the rear edges of the cards will overlap each other as shown at Fig. 3. This is done with a definite object, as follows: Swinging levers 23 operated by a cam 24 on the main shaft 13 are each provided with a spring pressed arm 25 having a claw or shoulder 26 adapted to engage the rear edge of the lowest card and as the levers swing to move the card forward it is engaged between the rotating pressure rollers 27 and 28 and moved forward thereby to the printing position. The levers 23, 23 may be returned by means of any suitable device such as a spring α or weight or the cam can be so constructed as to positively return them. The pressure rollers 27 and 28 are operated by means of friction rollers 29, 29 and the rollers 29 are operated by friction rollers 30, 30 upon the shaft S of the sprocket wheel 10. The card then passes between the rollers 30 at each side of the machine and the roller 17 and the card is printed while it is between the roller 17 and the bed plate and the rollers 30 while the type holder rests in the guide slot 15².

An inking ribbon 32 accompanies the lower type holders while on their way to the printing position and is mounted upon rollers 33 and 33 pivoted in the bearings 35, 35 as shown in Fig. 14, and the bearings slide on the bed plate on each side of the type holder. Lugs 36, 36 on the bearings pass through slots 37, 37, in the bed plate and are engaged by arms 38 on the shaft S so that with each revolution of the shaft

the rollers and inking ribbon will be moved forward to and through the printing position. After the impression is made the arms 38 release the bearings and a spring 39 returns the bearings against a shoulder 40. The ribbon extends transversely of the machine and is fed by means of the arms 38, 38 in unison with the action of the pressure rollers and simultaneously with the card, so that the impression is made on the card above one line at a time as the card C passes between the upper roller and type holder without wrinkling the ribbon. The ribbon is then withdrawn for use with the next succeeding type holder. The ribbon 32 is automatically wound upon the oppositely placed rollers 33, 33, by means of bell cranks 90 which engage the ratchets 91 which have their teeth reversed. The bell cranks 90 are actuated as the rollers 33, 33, reciprocate, by means of the pins 92, 92 in the bed plate, and are operated thereby when going in one direction but the tips 90^a of the bell cranks are hinged at 99, so that they will yield and pass the pins 92 when going in the opposite direction. The spring 94 is arranged to return each tip 90^a to its position for engaging the pin 92. See Figs. 14, 9, 9^a, 10 and 11. The bell cranks 90 (see Fig. 9^a) pivoted at 90' are formed with the tip of the pawl arm pivoted at 96 to swing back against spring 94 and move with the bell crank 90 when the rollers 33, 33 and their supports move back, but are released from the ratchets on the return movement. That is the bell crank and tip 95 engage each other when moving in one direction but the pawl swings back against the spring 94 when going in the reverse direction to permit the pawl to pass the ratchet teeth. A shoulder 93 on one portion of the arm engages a corresponding shoulder 97 on the other portion.

Important features of the invention lie in the adjustability of the card feeding mechanism so that the card can be positioned wherever desired relatively to the printing position and the width of the margin thereby determined and location of the impression. This is obtained by means of sliding bearings 41, 41 for the shaft 42 of the friction rollers 29 whereby the rollers 29 and 30 can be removed from contact until the desired alteration has been made in position of the lower type holders on their carrier chain. The adjustment shown comprises an extended arm 43 from each bearing 41 and a cam bar 44 engaging the arms 43 and cam edges 45, 45 in the bed plate. A screw 46 mounted in the frame 1 provided with an annular groove 47 engages a projection 48 on this bar to operate the same. As the screw turns the cam bar described having inclines engaging the inclines 45, 45 is pushed aside and operates

the sliding arm 43. The boxes 41 are forced back by spring 47^a. See Fig. 12. An adjustment for the upper type holder is also shown in Figs. 1 and 13 where the extremity 5 of the sprocket shaft S is shown tapering at 49 and the wheel 8 is provided with a corresponding taper opening 49' passing there-through and in the end of the shaft S is provided a screw 50 having a clamping 10 head 50' which clamps the sprocket wheel closely to the shaft or can be loosened so as to permit the angular adjustment of the upper type holder to vary the moment of printing of the upper type holder relative 15 to the printing position of the lower type holder so as to print on any desired portion of the card when it comes under the rotatable type holder so that the impression can be made in any desired position on the card, 20 or if it is not desired to print the upper surface of the card, the type holder can be rotated entirely out of contact therewith and the front of the machine left open for access to the cards. It is understood that 25 all the type holding grooves in the type holder 3 may not and hardly ever would be filled at the same time. This adjustment permits of printing in the center of the card or near either edge.

30 The card after passing the rollers 17 and 30 is carried through guides 60 to a printing position between the upper type holder and a pressure roller 61 mounted upon a bearing 62 which is vertically adjustable by means 35 of a set screw or screws 63 to obtain the desired pressure. The type on the upper type holder may be supplied with ink in any desired manner. Two methods are shown which may both be employed. At 64 and 65 40 are shown inking rollers supplied with ink from a font 66 mounted on the frame. At 67 is shown an inking ribbon which is wound on rollers 68, 68. Spring pressed pivoted arms 69, 69 provided with spring pressed 45 pawls 70, 70 engaging ratchet wheels 71, 71 rotate the rollers 68, 68 by striking alternately against a pin 72 on one of the arms 2 as the type holder revolves. Pins 73^c (see Fig. 2) serve to limit the backward move- 50 ments of the arms 69, 69. A second inking device for the lower type holder may also be employed if desired.

73 and 74 are inking rollers mounted in a standard 75 (see Fig. 2) and supplied 55 from a font 76. An additional roller 77 may be employed to feed the cards if desired which presses against the bottom of the lower card and the pile of cards is placed under constant pressure from above by 60 means of a spring pressed plunger 78, having an adjusting screw 79. An adjustable hinged gate 80 in the front of the card holder adjusts the outlet opening. A set screw 81 forms the adjusting means there- 65 for.

At 100 is seen a bar having arms 101 which engage the cams 24 and move them to engage or disengage the arms 23, 23, so that the card feeding arms can be released when it is desired to adjust the position of the 70 cards relatively to the printing position so as to determine the width of the margin. This bar is operated by means of the screw 102.

Having described the invention what I 75 claim as new and desire to secure by Letters Patent is—

1. In a combined printing and addressing machine, a bed plate, a rotatable upper type holder and a pressure roller thereunder, a 80 receptacle for lower type holders from which said typeholders fall by gravity, a carrier provided with engaging means for said lower type holders and adapted to move said typeholders one at a time from said recep- 85 tacle to a printing position, a pressure roller at the printing position for said lower typeholders, a card receptacle having an inclined rear wall, an adjustable front wall therefor, an automatically acting feed device for said 90 cards adapted to remove said cards one at a time from said card holder and feed them to said pressure roller, inking devices for said upper and lower type holders, a main shaft and mechanism operatively connecting 95 said carrier, said card feeding device and said rotatable upper type holder with said main shaft.

2. In a combined printing and addressing machine, a bed plate, a receptacle for lower 100 type holders, and a receptacle for cards thereon, a carrier adapted to remove said type holders one at a time from said receptacle, a feeding device for said cards, a pressure roller to which said cards and lower 105 type holders are fed, guides for the cards after passing said pressure roller, a rotatable type holder and pressure roller therefor in line with the said guides, said pressure rollers being adjustable. 110

3. In a combined printing and addressing machine, in combination, a bed plate, an upper rotatable type holder thereon, and a shaft therefor, an adjustable pressure roller on said bed plate coöperating with said rota- 115 table type holder, an intermediate shaft and rollers thereon, and a main shaft, a device operatively connecting said main and intermediate shafts, and a connecting means between said intermediate shaft and the shaft 120 for the rotatable type holder, a receptacle for a series of lower type holders on said bed plate, engaging means on said connecting device between said main and intermediate shafts adapted to engage and convey 125 said lower type holders one at a time to the printing positions, of upper and lower type holders, and a feeding device for a series of cards adapted to feed the cards to the printing position for said lower type hold- 130

ers, a device operatively connected with the main shaft for operating said card feeding device, a pressure roll over the printing position for lower type holders, and inking devices for said upper and lower type holders.

4. In a combined printing and addressing machine, a main frame, a bracket thereon and shaft therein, a rotatable upper type holder pivotally mounted on said bracket, a pressure roller in the printing position for said upper type holder, a platform for a series of lower type holders, a receptacle therefor, in which said type holders fall by gravity, upon said platform, a carrier for said type holders adapted to remove them from said receptacle to a printing position for said lower type holders, a feeding mechanism for a series of cards adapted to feed the cards to said printing position for said lower type holder, a pressure roller at the printing position for the lower type holders, said pressure roller adapted to feed the cards to the printing position for the upper type holder.

5. In a combined printing and addressing machine, adapted to print upon opposite sides of a card, successively and independently, in combination, a frame, a receptacle for lower type holders thereon, a longitudinal guide and support for said lower type holders upon which they fall by gravity from said receptacle, a carrier for the lower type holders adapted to remove them one at a time from the receptacle and convey them to the printing position for lower type holders, a card feeding device adapted to feed a card to the printing position for lower type holders, pressure rolls at said printing position, a movable type holder above said bed plate, a pressure roll therefor at the printing position for said upper type holder, the printing positions for upper and lower type holders being independent and spaced apart in the line of travel of said lower type holders.

6. In a combined printing and addressing machine adapted to print on both sides of a card and having successive spaced printing positions, one for the lower and one for the upper side of the card, a receptacle for lower type holders, a carrier adapted to convey the lower type holders one at a time to the printing position for the lower side of the card, a device for conveying a card simultaneously to said printing position for the lower side of the card, means for applying pressure to said card and lower type holder, a rotatable upper type holder in the path of said card, and means for applying pressure to said card and rotatable upper type holder, when said card is in the printing position for the upper side thereof.

7. In a combined printing and addressing machine having independent spaced printing positions for upper and lower type hold-

ers, a frame, a longitudinal guide for lower type holders thereon, a receptacle from which said lower type holders fall by gravity on said guide, a feeding device adapted to convey said lower type holders to their printing position, a card feeding device adapted to act in unison with said lower type-holder feeding device to convey the cards to the same printing position, a pressure applying device in said printing position, means for releasing said card feeding device to adjust the margin on the printed card, a movable upper type holder, a pressure applying device therefor at the printing position for the upper type holder, means for releasing the upper type holder from movement, to adjust the margin of the printed card on the upper surface, and operating means for said type holder and card operating devices.

8. In a printing machine, in combination a frame provided with a raised longitudinal guide platform for lower type holders, a sprocket shaft at each end thereof, a sprocket on each shaft and a connecting chain, one of said shafts being a main driving shaft, a longitudinal groove in said platform in which said chain travels, said chain provided with type holder engaging means, an impression roller pivotally mounted over said platform, at the printing position for lower type holders, a card receptacle elevated over the platform underneath which said chain passes, said card receptacle having a lateral opening through which each card passes in turn, pressure rollers adapted to receive and transmit said card to the said type holders underneath said impression roller, and a receptacle for type holders, from which said type holders fall by gravity upon said platform in the path of said chain, and means for operating said card feeding rollers.

9. In combination with a frame, and longitudinal platform thereon, shafts pivoted in said frame, a sprocket wheel on each shaft, and chain thereon, type holder engaging means on said chain, a roller mounted on a sliding bearing on each side of said platform an inking ribbon passing over said platform and type holders and wound upon said rollers, arms on one of said shafts adapted to move said roller bearings forward as said chain moves said type holders, and to release the same after passing the printing position, and means for returning the rollers and bearings, to their original position and for rotating said rollers on the return movement.

10. In combination with a frame and longitudinal platform thereon, shafts in said frame and sprocket wheels thereon, a chain connecting said sprocket wheels, engaging means for type holders on said chain adapted to move the same longitudinally of the

said platform, a pressure roller pivotally supported above said platform, an inking ribbon transversely movable above said type holders, rollers and movable supports therefor on said frame, and a device operatively connected with one of said shafts for moving said roller supports in unison with the movements of said chain to the printing position underneath said pressure roller and

means for returning said rollers and movable supports.

In testimony whereof, I hereunto set my hand this 21st day of December 1910.

CLAY M. RUNYAN.

In presence of—

WM. M. MONROE,

EDWARD H. TRACY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."