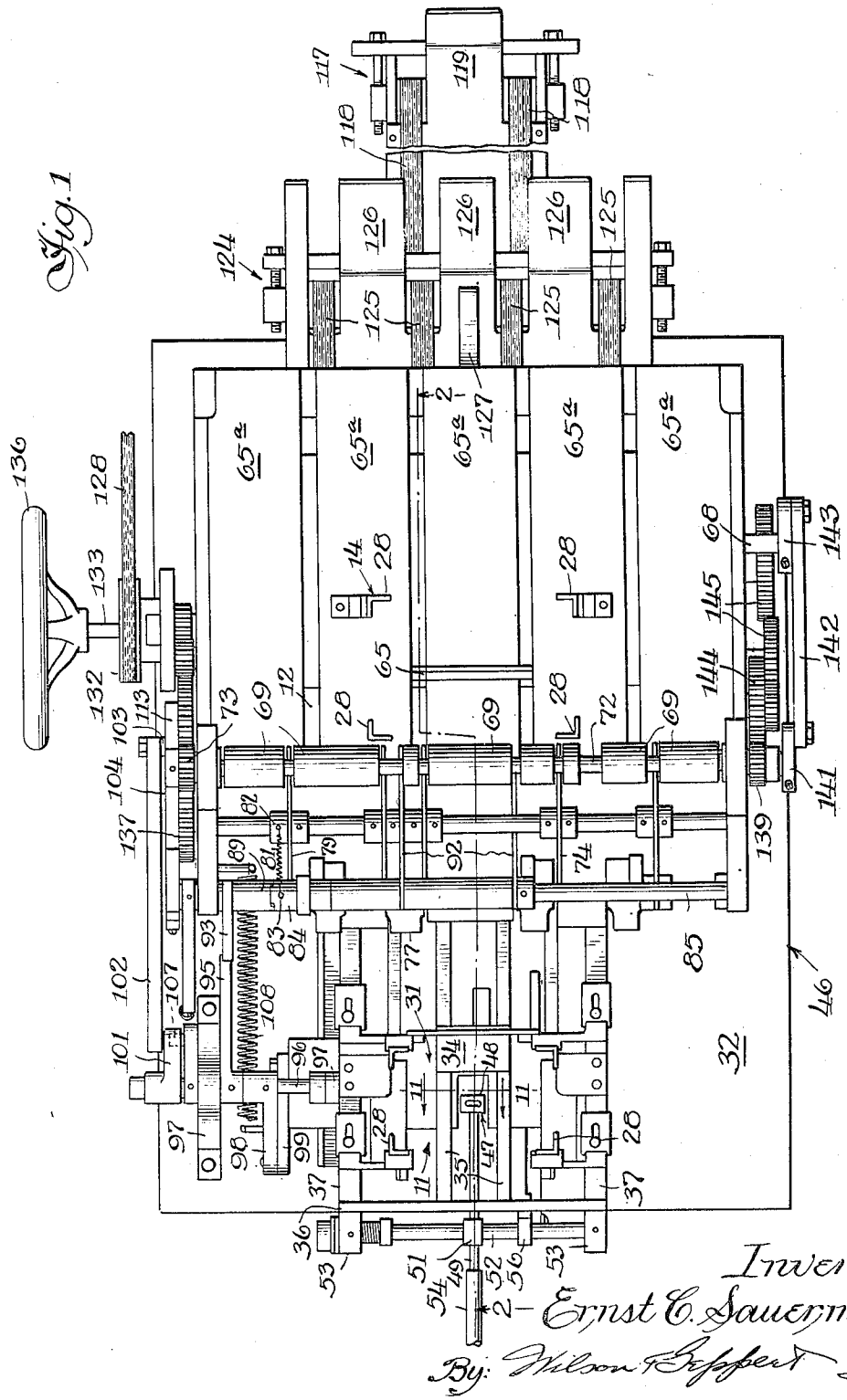
Oct. 16, 1956 E. C. SAUERMAN 2,766,685

HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

Filed Feb. 19, 1951 7 Sheets-Sheet 1

Fig. 1



Inventor,
Ernst C. Sauerman,
By: Wilson & Fraser Attys.

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HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

Filed Feb. 19, 1951 7 Sheets-Sheet 2

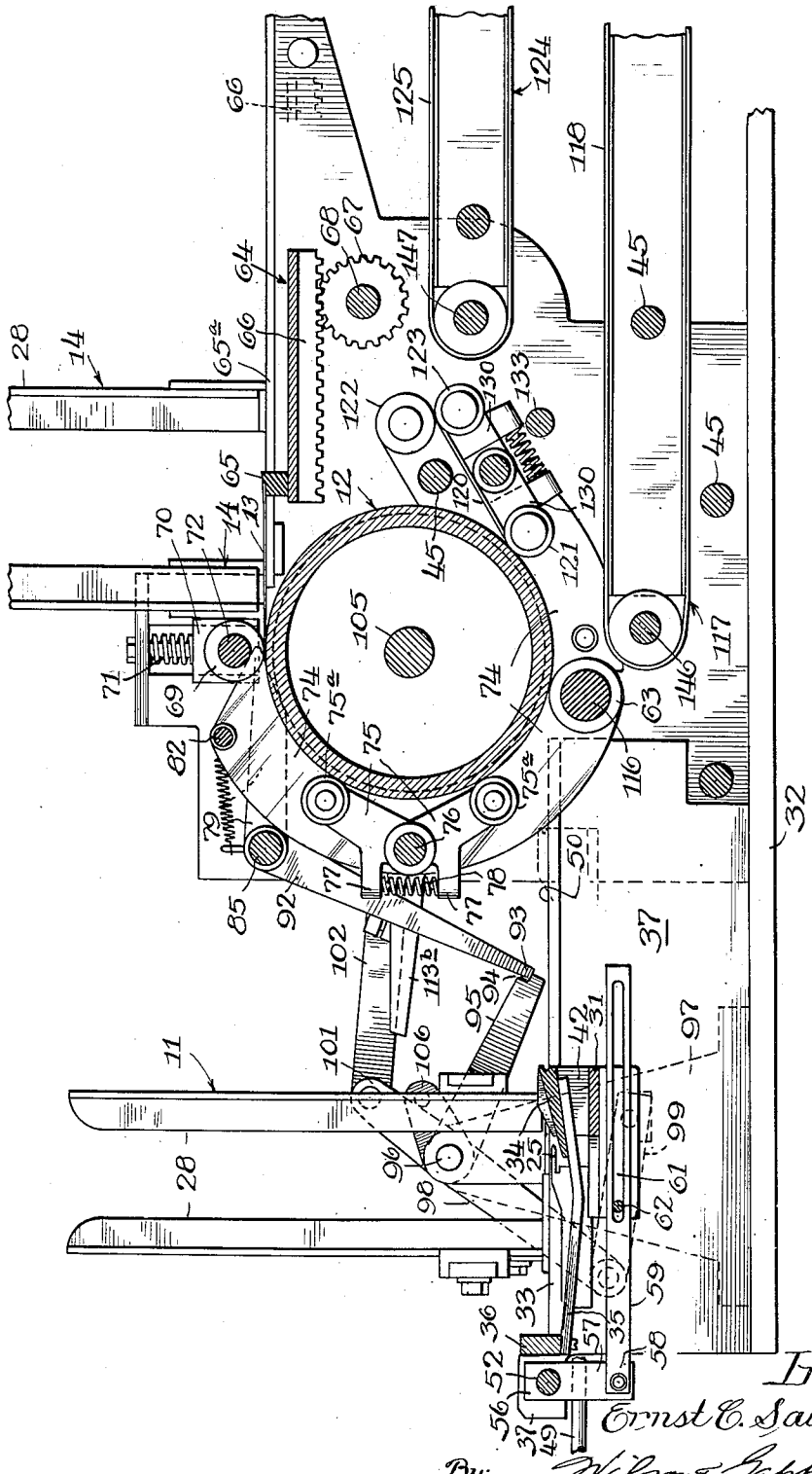


Fig. 2

Inventor,
Ernst C. Sauerman,
By: Wilson & Geppert Attys.

Oct. 16, 1956 E. C. SAUERMAN 2,766,685

HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

Filed Feb. 19, 1951 7 Sheets-Sheet 3

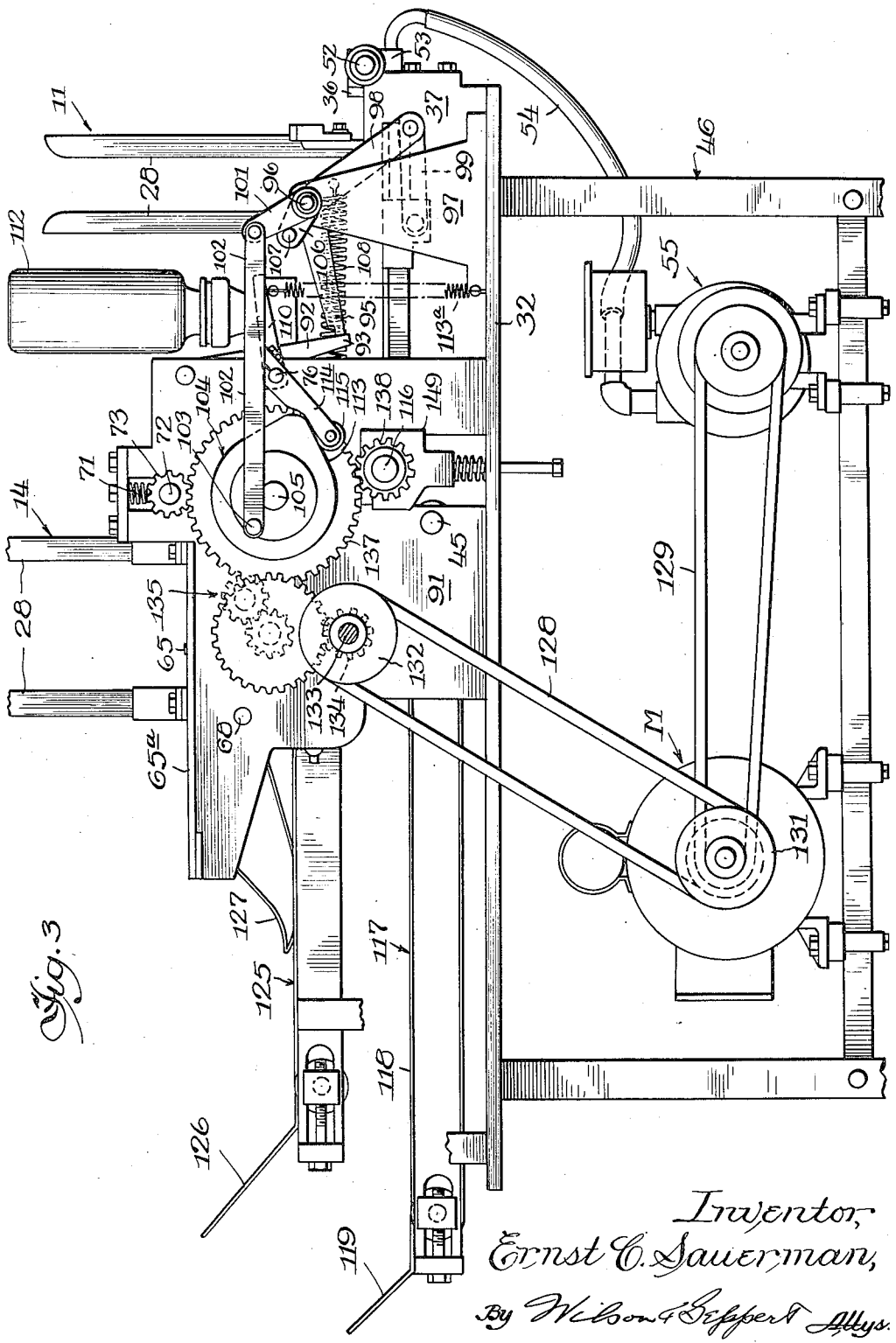


Fig. 3

Inventor,
Ernst C. Sauerman,
By Wilson & Seffert Attys.

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HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

Filed Feb. 19, 1951 7 Sheets-Sheet 4

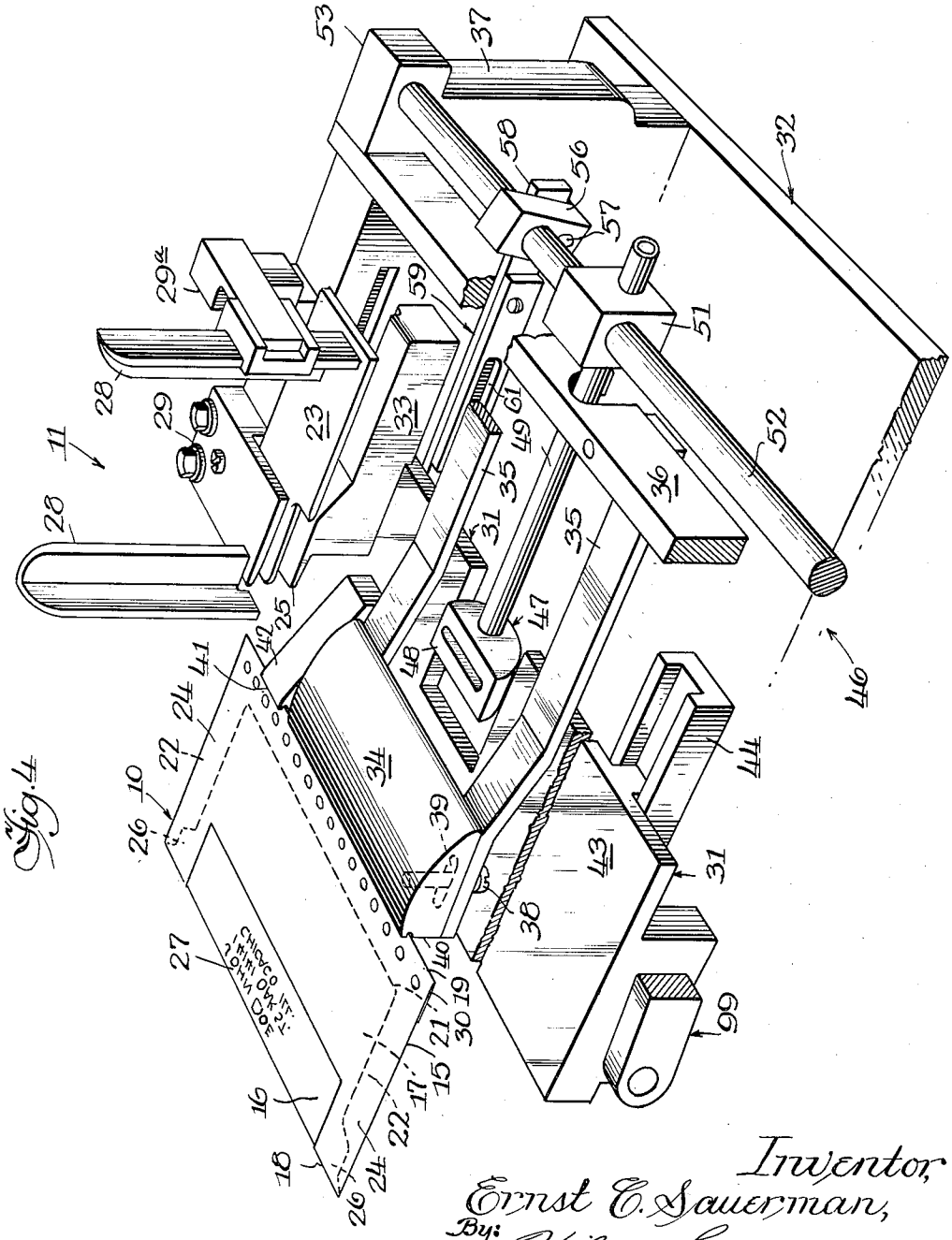


Fig. 4

Inventor,
Ernst C. Sauerman,
By: Wilson & Gephart
Attys.

Oct. 16, 1956 E. C. SAUERMAN 2,766,685

HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

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Fig. 5

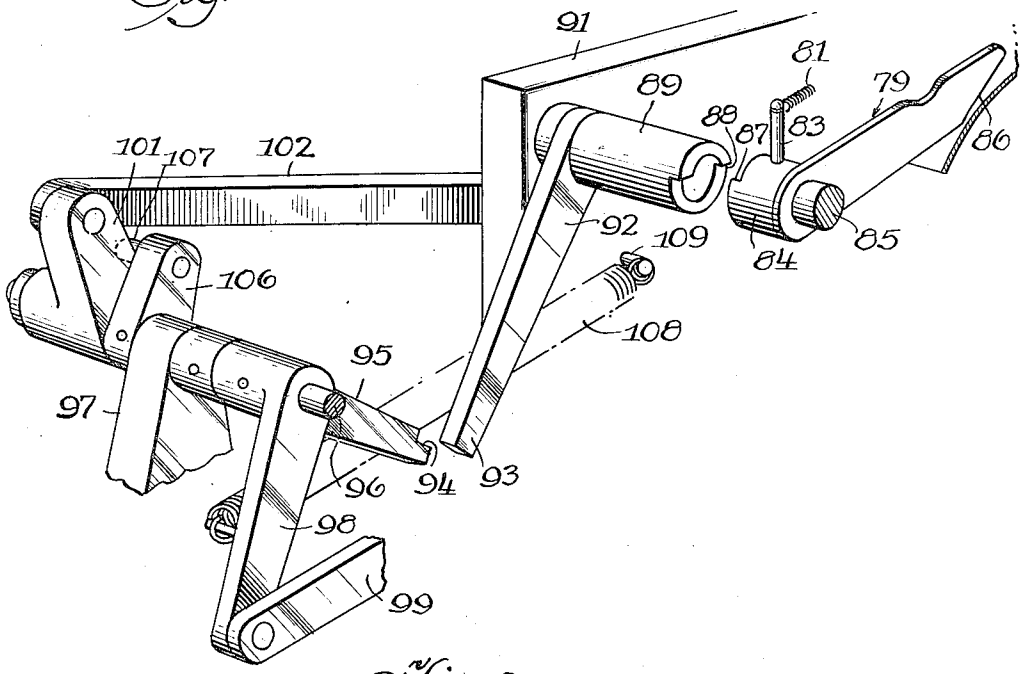
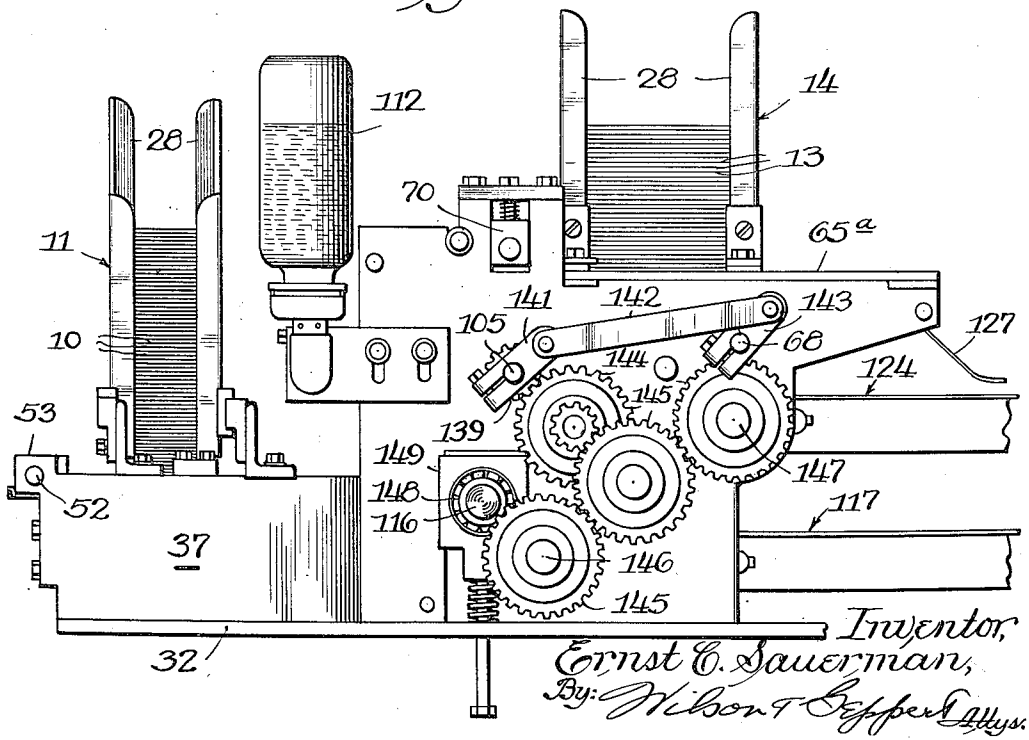


Fig. 6



Inventor,
Ernst C. Sauerman,
By: Wilson & Pepper Attys.

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HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

Filed Feb. 19, 1951 7 Sheets-Sheet 6

Fig. 7

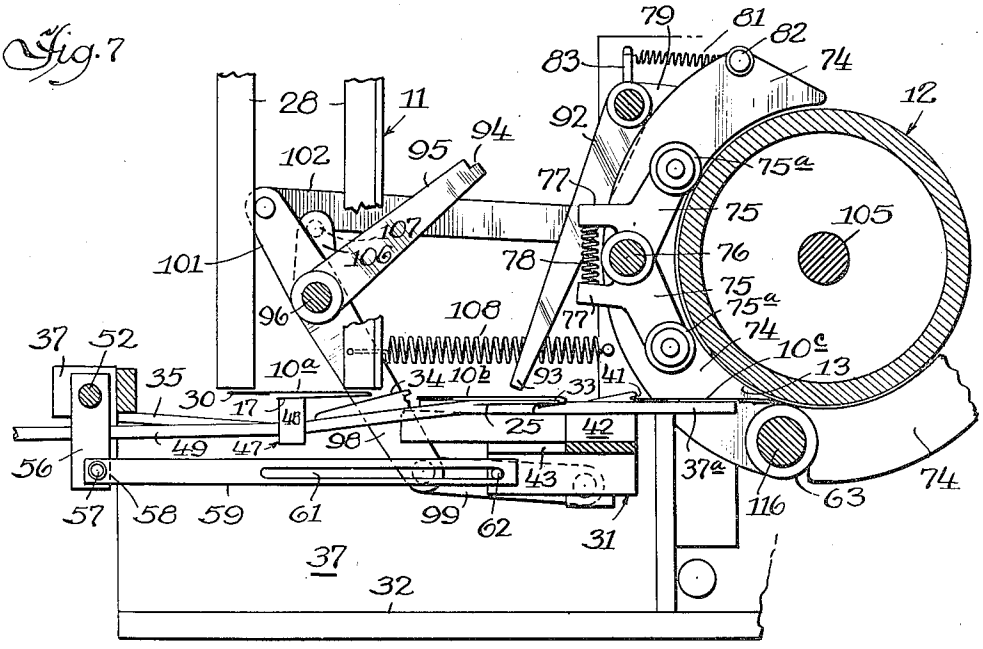
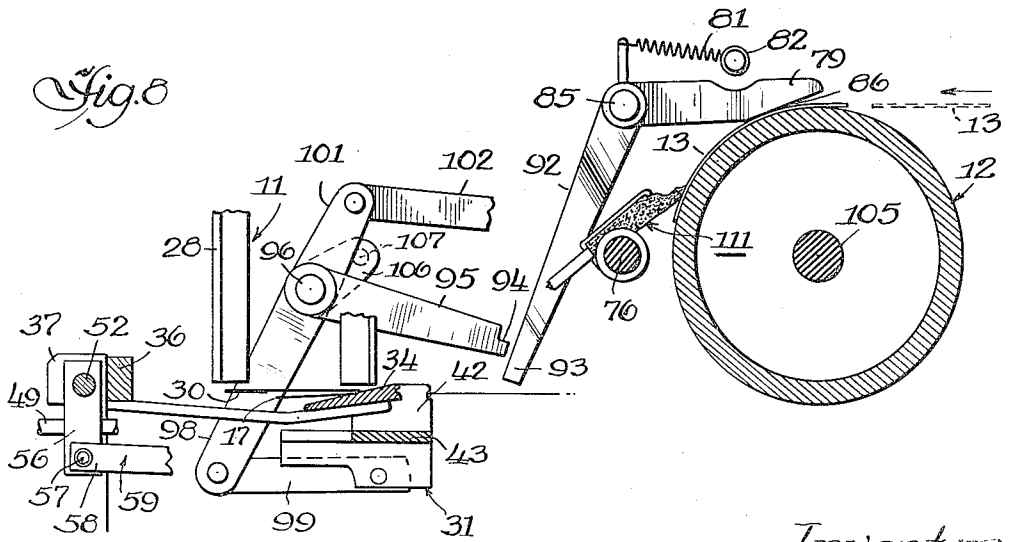


Fig. 8



Inventor,
Ernst C. Sauerman,
By: Wilson & Seppert
Attys.

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HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

Filed Feb. 19, 1951 7 Sheets-Sheet 7

Fig. 9

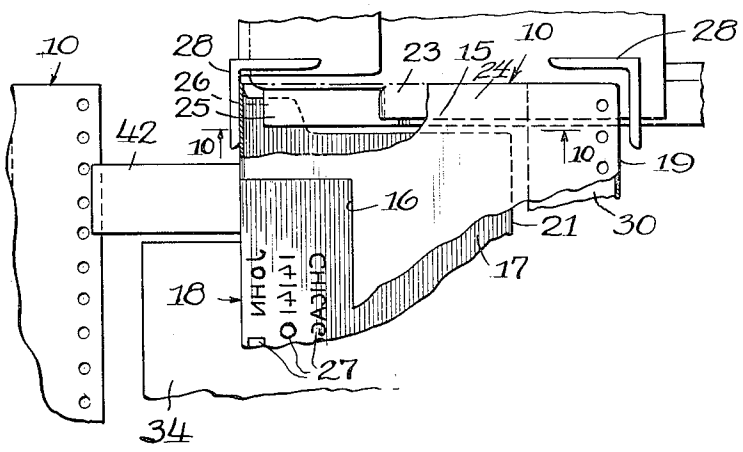


Fig. 10

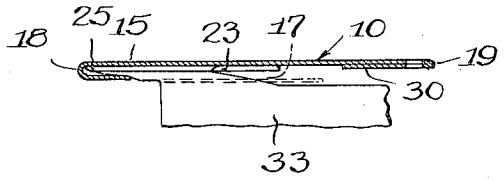
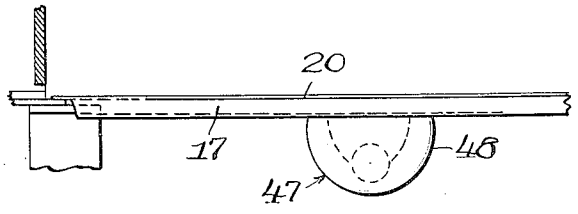


Fig. 11



Inventor,
Ernst C. Sauerman,
By: Wilson & Pippert Attys.

United States Patent Office 2,766,685 Patented Oct. 16, 1956

2,766,685

HECTOGRAPHIC ROTARY ADDRESS PRINTING MEANS

Ernst Carl Sauerman, Chicago, Ill., assignor to Address Mail Fast Systems, Inc., Chicago, Ill., a corporation of Illinois

Application February 19, 1951, Serial No. 211,749

9 Claims. (Cl. 101—53)

The present invention relates to addressing machines and the like and especially to a novel means and mechanism for printing names and addresses or other identifying data onto mailing or other pieces to be imprinted from folded printing cards fed to a printing station such as a roller in accurately timed relation with the feeding thereto of the pieces to be imprinted.

Among the objects of the present invention is the provision of an addressing or printing machine in which the folded cards bearing the names and addresses or other identifying data and the mailing or other pieces to which such data is to be transferred are fed and advanced through the addressing or printing machine in accurately timed relation, and in the event of the non-feed of a piece to be printed the operation of the mechanism feeding the cards thereto is interrupted until such time as a piece to be printed is fed to the printing station or roller.

A further object of the present invention is the provision of a novel means and mechanism for synchronously feeding to the printing station or impression cylinder of the addressing or printing mechanism successive address or printing cards and mailing or other pieces to be imprinted, said means and mechanism being so constructed and arranged as to prevent the feeding to the printing station or impression cylinder of an address or printing card except when a mailing or other piece to be printed has been fed thereto.

A further object of the present invention is the provision of a novel free running trip mechanism that is spring loaded and actuated in such manner as to retain the succeeding address card in the event no mailing piece is fed to the printing station or roller.

Another important object of the invention is the provision of novel tripping mechanism associated with the carriage for supplying successive address or printing cards to the printing station or impression cylinder whereby to lock said carriage against movement except when a mailing piece is being fed to the printing station or impression cylinder. This assures the printing of a mailing piece or other item for each address or printed card supplied to the machine.

Another important object of the present invention is the provision of a novel compact and highly efficient mechanism for printing names and addresses or other information directly onto separate or individual mailing items or the like including envelopes, circulars, cards, folders, sheets for credit and bookkeeping systems, etc., from stacked address or printing cards containing the desired information.

The present invention further comprehends the provision of a novel continuously operating addressing or printing machine in which separate mailing pieces or other items to be imprinted and separate printing cards containing the name and address or other desired information to be printed upon the successive mailing pieces are fed in timed relation from their respective magazines to a printing station or impression cylinder. By reason of its novel construction and arrangement, the operator

can readily replenish the stack or supply of such mailing pieces or pieces to be printed without stopping the machine, and if the supply becomes exhausted while the machine continues to operate, the feeding of the address or printed cards is automatically suspended until such time as the supply of such mailing pieces is replenished.

The present invention further comprehends a novel arrangement of a common drive means for feeding successive address cards and mailing pieces to the printing station or impression cylinder and for moistening the mailing pieces in a limited area to receive the address, whereby to eliminate the possibility of slippage and to assure an imprint on each mailing piece in the prescribed area.

Another important feature of the present invention is the provision of a novel and compact addressing or printing machine having a conveniently located magazine for receiving a stack of address or printing cards printed in hectograph ink, a second magazine for receiving a stack of mailing pieces or other items each to be printed or to have transferred thereto the information on a card, and means for separating and collecting the cards and the printed mailing pieces after the printing operation has been accomplished and in the original sequence in which they were supplied or fed. The operator standing at one side of the machine and while the machine continues to operate, is in a position to quickly replenish the supply of cards and mailing pieces to the magazines provided therefor, and also to separately remove the collected cards and mailing pieces or the like from the machine after the printing operation has been completed. This provides for maximum convenience and efficiency and whereby the output is substantially increased over prior types of machines.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

In the drawings:

Figure 1 is a top plan view of the novel addressing or printing machine.

Fig. 2 is a fragmentary, enlarged view in vertical cross section taken in a plane represented by the line 2—2 of Fig. 1, the delivery mechanism for the address or printing cards being shown in retracted position and the tripping mechanism which is released by the feeding of a mailing piece or the like to the impression cylinder being shown in locked position to prevent the feeding of an address card to the cylinder.

Fig. 3 is a view in side elevation of the novel addressing machine.

Fig. 4 is a fragmentary enlarged view in perspective of the forward end of the machine from which the address cards are fed to the impression cylinder, portions of the upper mechanism being removed to more clearly disclose the means and manner of successively feeding step by step the lowermost address card from the magazine.

Fig. 5 is a fragmentary and partially disassembled view in perspective of the novel tripping mechanism.

Fig. 6 is a view in side elevation of the novel addressing machine but showing the side opposite to that shown in Fig. 3.

Fig. 7 is a fragmentary view similar to that of Fig. 2 but showing the novel tripping mechanism in released position as when a mailing piece is fed to the roller, the carriage for advancing the address or printing card being advanced to the limit of its forward stroke.

Fig. 8 is a fragmentary view in side elevation of the tripping mechanism in tripped or released position in which it is disposed when the mailing piece has passed beneath the feelers and the piece is being moistened by the liquid applicator prior to its engagement with the ad-

dress card at the lower surface of the impression cylinder.

Fig. 9 is a fragmentary top plan view showing one of the address or printed cards being engaged or picked up by the first pair of pushers prior to their forward travel.

Fig. 10 is a fragmentary view in vertical cross section taken in a plane represented by the line 10—10 of Fig. 9.

Fig. 11 is a fragmentary view in vertical cross section taken in a plane represented by the line 11—11 of Fig. 1 and showing an address card and the suction box or sucker for lowering or pulling down the flap or lower fold from the body or upper fold of the card.

Referring more particularly to the disclosure in the drawings and to the novel illustrative embodiment therein shown, the novel addressing machine is adapted to receive adjacent one end thereof a stack of cards 10 disposed in vertically stacked relation in a supporting magazine 11, and these cards are adapted to be individually fed to the machine from this vertical stack in accurately timed relation with the feeding to the impression roller or cylinder 12 of successive, individual pieces 13 to be imprinted from a stack of such pieces disposed vertically in a supporting magazine 14 shown as located at the other side of the cylinder or roller.

These pieces to be printed may be mailing items such as cards, envelopes, circulars, folders, etc., or they may be credit or bookkeeping systems, and the like. In fact, any piece or item to be imprinted with identifying data, may be employed, any and all of which are hereinafter referred to broadly as mailing pieces. The individual cards which are hereinafter referred to as address cards, generally contain the name and address of an intended recipient, but may also contain in addition to or as a substitute for such name and address any suitable information or identifying data.

The address cards 10 are supplied individually and successively from the bottom of the stack and advanced toward the impression roller, cylinder or drum 12 in timed relation with the feeding to this cylinder or roller of the individual and successive mailing pieces. Each address card 10 (Figs. 4, 9, 10 and 11) is composed of an upper fold 15 having a cut-out 16 and a lower fold or flap 17 divided or folded along the forward edge or fold line 18. The lower fold or flap 17 is of less depth than the upper fold whereby the rear edge 19 of the upper fold 15 is spaced from the parallel edge 21 of the lower fold or flap, and the opposite ends of this lower fold or flap 17 are notched at 22 whereby the individual address cards may be supported from oppositely arranged ledges 23 through the overlying marginal portions 24 of the upper fold.

The lowermost card of the stack being supported in the above manner, the narrower lower fold or flap 17 thereof is free to drop down between the ledges 23 and out of engagement therewith. At the forward margin of the lower fold or flap and adjacent the fold line 18, this fold is of but slightly less width than the upper fold 15 so that card feeding wedges or projections 25 may advance into the angles formed between the upper fold and the narrow end portions 26 of the lower fold or flap to perform their camming and feeding functions. Each lower fold or flap is shown as provided with a name and address at 27 printed with hectograph ink and exposed through the cut-out 16 for transfer to one of the mailing pieces 13, although other identifying data may be added or substituted for that mentioned.

With a stack of address cards 10 mounted within the spaced uprights or angle members 28 of the supporting magazine 11, the opposite margins or edges 24 of the upper fold 15 of the lowermost card rest upon the oppositely disposed stationary ledges 23 disposed at the opposite sides at the base of the magazine ready to be withdrawn. These uprights 28 and the ledges 23 are readily adjustable at 29 and 29a to receive cards of different dimensions. To assure that these cards be of substantially uniform thickness, the upper fold is extended

with the portion 30 thereof turned under and affixed to provide a portion of double thickness.

A carriage or plate 31 (Fig. 4) is mounted for reciprocation upon the bed 32 of the machine and this carriage supports a pair of spaced pushers 33 each disposed beneath one of the ledges 23. Each pusher is provided with a wedge or projection 25 adapted to engage in the folded corners of each card to pull these corners down and clear of the magazine and to advance the card so withdrawn through the first feeding step in which the trailing or rear edge 19 of the card is carried beyond a stationary back stop 34. This back stop is secured to and supported upon and bridges or projects across the ends of a pair of spaced longitudinally extending bars 35 rigidly secured or anchored to a cross bar 36 affixed to spaced side plates or bearings 37. Bolts 38 each received in an elongated slot 39 in the free ends of the bars 35 allows adjustment longitudinally of the machine of the backstop 34.

As the carriage 31 is reciprocated and moved longitudinally in its path of travel, the pushers 33 engage and carry or move an address card 10 forwardly and over the inclined backstop 34 to the limit of forward movement of these pushers in the initial feeding step. This movement advances the card to the position shown in Fig. 4 where the trailing edge 19 of the card is disposed upon the top surface of the guide plates 50 adjacent the notched forward edge 40 of the backstop and the similarly notched forward edge 41 of a second pair of pushers 42 also mounted upon and carried by the reciprocating carriage 31 of the opposite ends of the backstop 34, but spaced from the first pair of pushers 33 for moving the card through the second feeding step. The forward edge 40 of the backstop prevents any rearward movement of the card 10 with the carriage from the position of Fig. 4 as the carriage 31 is retracted to its starting or initial position. This reciprocating carriage 31 comprises a plate 43 riding in stationary channel members or guideways 44 disposed between the side plates or bearing supports 37 of the machine. The side plates are held together by tie-rods 45 and the entire machine is shown as mounted upon the bed 32 of a supporting base or table 46.

A sucker 47 cooperates with the oppositely arranged ledges 23 in successively separating the lowermost card 10 from the stack. This sucker includes a suction cup 48 secured to and communicating with one end of a rigid tube section 49 mounted in a block 51 fixed to a transverse shaft 52 journalled in oppositely disposed bearing blocks 53 on the side plates 37. A section of flexible tubing 54 connects a pump 55 to the rigid tube section 49 (Fig. 3).

The transverse shaft 52 which carries and tilts or moves the sucker 47 and its suction cup 48 through a limited arc of movement is provided with a block 56 having an eccentrically mounted pin or projection 57 pivotally connected to one end 58 of a link 59 (Figs. 2, 4, 7 and 8). The other end of this link is provided with an elongated slot 61 adapted to receive a pin 62 projecting from the carriage 31. Thus as the carriage is moved to the end of its stroke (Fig. 7), the pin 62 reaches the end of the slot and thereupon carries along the link which tilts the block 56 and its transverse shaft 52 in a counterclockwise direction through an arc sufficient to elevate the suction cup 48. When the carriage 31 is returned to the beginning of its stroke (Fig. 2), the pin 62 reaches the opposite end of the slot 61 and carries along the link 59 whereby to rock the block 56 and the transverse shaft 52 in a clockwise direction whereby to lower the the suction cup 48 and depress the flap or lower fold 17 of the lowermost card 10 in the magazine 11. The sucker thus has but limited vertical movement and the address card may be quickly stripped therefrom.

Fig. 7 discloses successive feeding positions of an address card or of successive address cards as they are fed from the base or opposite ledges of the supply magazine, one of the cards 10a being in the base of

the magazine, the second numbered card 10b being moved to the first feeding step by the first set or pair of pushers 33, and the third numbered card 10c being moved to the second feeding step by the second set or pair of pushers 42. In this last position the card 10c is moved into the bight between the rubber-covered, frictionally driven feed roller 63 and the impression cylinder or roller 12 and into engagement with a mailing piece carried upon the impression cylinder or roller 12.

The lowermost mailing piece 13 in the stack thereof in the magazine 14 is successively removed by a reciprocating carriage 64 having a transverse feed member or plate 65 mounted on and reciprocated by one or more gear racks 66 each in meshing engagement with and driven by a pinion 67 mounted on an oscillating transverse shaft 68. This feed plate or member 65 engages the lowermost mailing piece and moves it across a longitudinally slotted feed bed 65a and into the bight between an upper, driven feed roller 69 and the impression cylinder 12. The upper feed roller 69 is preferably formed of rubber-covered sections and spring-loaded (Figs. 2 and 3), the end of its shaft being mounted in slidable bearing blocks 70 in the frame and spring-biased downwardly into contact with the cylinder by a coil spring 71, its shaft 72 being driven by a gear or pinion 73 pinned thereto and in meshing engagement with a train of gears. Like the magazine 11, the magazine 14 is preferably made adjustable.

The successive mailing pieces are thus fed to the upper surface of and held in contact with the circumference of the impression cylinder or rotor 12. As the cylinder is rotated and moves in a counter-clockwise direction (Figs. 2, 7 and 8), each mailing piece is moved under the upper edge of a plurality of spaced and substantially arcuate-shaped plates 74 disposed edgewise and in substantial conformity with the contour of the cylinder. These plates maintain the mailing pieces upon the cylinder and assure their being delivered to the printing station where the cylinder 12 and roller 63 are in contact, and then to carry the imprinted mailing pieces 13 thereabeyond. Each plate 74 is provided with oppositely projecting arms 75 each pivotally mounted on a cross shaft 76 and each provided with a rearward projection 77 having a coil or compression spring 78 disposed therebetween for spring-biasing these arms 75 and pressing rollers 75a carried thereby into contact with the cylinder 12.

Disposed adjacent the upper ends of the plates 74 are provided one or more pivotally mounted feelers 79 (Figs. 2, 5 and 8). These feelers are spring-loaded by means of a tension spring 81 secured at one end to a stationary stud 82 and at its other end secured to an upstanding pin or projection 83 on a collar or sleeve member 84 affixed to the feeler but loosely mounted on a stub shaft 85 whereby the feelers are spring-biased toward contact with the impression cylinder 12. The tapered surface 86 of each feeler is adapted to contact the cylinder except when a mailing piece 13 is carried by the cylinder and is moved beneath the feeler, the thickness of the mailing piece being sufficient to elevate this feeler and rotate the collar 84.

As shown in Fig. 5, this collar has its end 87 cut away and coupled to a substantially complementary end 88 of an adjoining collar 89 also loosely or pivotally mounted on the stub shaft 85 journalled in the side walls 91 of the machine. These cut-away ends 87 and 88 of the collars 84 and 89, respectively, have a slight clearance to allow for a relatively small time lag before their complementary ends interlock or interengage and the rotation of collar 84 is transmitted to collar 89.

To collar 89 is secured a trigger arm 92 adapted to be rotated in a counter-clockwise direction when the feelers are engaged and lifted by a mailing piece on the cylinder 12. This rotation is sufficient to disengage the free end 93 of the trigger arm 92 from the notched end 94 of a trip arm 95 pinned to a cross shaft 96 journalled in bearings 97. Also pinned to this shaft 96 adjacent the trip arm 95 is one end of a depending crank arm 98 with the other end of this arm pivotally connected to a link 99 (Figs. 2, 5, 7 and 8). The other end of this link 99 is connected to the carriage 31 carrying the pushers 33 and 42 for advancing the address cards 10.

Loosely mounted on the cross shaft 96 is a crank arm 101 pivotally connected to one end of a link 102 with the other end of this link connected to an eccentric pin 103 (Fig. 3) on a cam 104 mounted on a shaft 105 driving or rotating the impression cylinder 12. Also mounted on but pinned or secured to the cross shaft 96 adjacent the crank arm 101 is a crank member 106 having a pin 107 projecting laterally into the path of the crank arm 101. A loaded coil spring 108 is connected at one end to a pin or stud 109 fixed to a side wall 91 and its other end is secured to the crank arm 98.

As the link 102 is continuously reciprocated during rotation of the impression cylinder or drum 12, the crank arm 101 is continuously oscillated thereby. However, this crank arm 101 being loose on the cross shaft, it does not transmit its motion to the crank shaft 96 and the latter remains stationary when the trigger arm 92 and trip arm 95 are engaged as in Fig. 2, i. e. when no mailing piece 13 is on the cylinder. However, when a mailing piece is carried by the cylinder and passes beneath the feelers 79, the latter are elevated by such mailing piece and the collars 84 and 89 are rotated and in turn rotate the trigger arm 93 to release the trip arm 95, whereupon the loaded spring 108 moves the carriage forwardly to the position shown in Fig. 7 where address card 10c is ready to be received by the impression cylinder 12.

To return the trip arm 95 in a clockwise direction from the position of Fig. 7 to that of Fig. 2 where it is locked beneath the end 93 of the trigger arm 92, the continuously operating crank arm 101 engages the pin 107 and moves it and its crank member 106 and the cross shaft 96 which is pinned thereto against the tension of the spring 108. This retracts the link 99 and carriage 31 to its initial position to feed another address card 10 from the lower end or base of the stack. But in the event no mailing piece is fed to the cylinder, the feeler 79 is not elevated and the trigger arm 92 and trip arm 95 remain locked so that the carriage 31 cannot be moved or reciprocated and an address card 10 cannot be fed to the cylinder 12.

As shown in Fig. 8, the mailing piece 13 as it is held upon and moved with the cylinder 12, is contacted by a liquid applicator 111 in an area to be imprinted. This applicator is mounted on a transverse or stub shaft 76 and has a wiping contact with the mailing piece 13 for moistening the latter in a prescribed area so that it may take the impression from each address card 10 as it travels in contact with the hectographed address appearing in reverse on the card. The activating liquid which is preferably, alcohol, is supplied to the applicator 111 from an inverted bottle 112 through a barometric feed (Figs. 3 and 6).

To synchronize the movement of the applicator with the feed of the mailing piece 13, the cam 104 (Fig. 3) provided on the drum or cylinder shaft 105 and rotatable therewith, is provided with a cam face 113. A follower arm 114 and roller 115 mounted on and adapted to rock the stub shaft 76 during each revolution of the cylinder 12 and thereby momentarily move the liquid applicator 111 against a limited area of the mailing piece 13 to be imprinted are maintained in contact with the cam face 113 by a spring 113a through an arm 110 secured to shaft 76. At other times during each revolution of the cam the applicator is withheld from contact with the mailing piece.

As each address card 10 is fed into the bight between the impression cylinder 12 and the rubber-covered impression roller 63 on the drive shaft 116, the name and address or other identifying data printed in reverse on the exposed face of the card is transferred in the usual

manner to the moistened area on the mailing piece (Figs. 2 and 7). Leaving the roller 63 the cards 10 being of less width than the spacing between the plates 74, drop therebetween and onto a conveyor system 117 and are delivered by the spaced conveyor belts 118 against one or more plates 119 inclined at the end or rear of the machine and conveyor where these cards are piled in overlapping relation and in their original sequence for reuse. Thus they may be readily removed by the operator without altering their predetermined arrangement.

The mailing pieces after imprinting are carried along with the cylinder 12 and plates 74 due to their greater width than the folded cards, and are then deposited on a guide plate 120 by means of a friction driven roller 121 held in engagement with and driven by the cylinder 12. The mailing piece 13 is then carried between a driven roller 122 of steel or the like and a friction driven roller 123, the latter like the roller 121 being preferably rubber covered and mounted on spring-loaded bearing blocks 130. From between the rollers 122 and 123, the imprinted mailing pieces 13 are then deposited onto a conveyor system 124 similar to the system 117 and delivered by the spaced conveyor belts 125 at the rear of the machine onto the inclined ends of a delivery plate 126. A leaf spring 127 or other suitable means may be provided for maintaining the mailing pieces which may be folded leaflets, envelopes, etc., flat against the conveyor belts 125 and delivery plates 126.

The cards 10 and the imprinted mailing pieces 13 delivered to the plates 119 and 126 at their inclined ends, are disposed and collected in overlapping relation thereagainst and in the original sequence in which they were supplied from their respective magazines so that an operator can quickly remove a stack thereof.

The entire machine including the suction pump 55 is driven from a single motor or power source M through the belts 128 and 129 (Fig. 3). The belt 128 driven from the pulley wheel 131 drives the pulley wheel 132 on a transverse drive shaft 133. Also keyed or pinned to this shaft is a small pinion or gear 134 in meshing engagement with and driving a train of gears 135 by which the component parts of the machine are driven in accurately timed relation and in their desired direction and speed of travel. The transverse shaft 133 is extended beyond the pulley wheel 132 where it is provided with a hand wheel 136 (Fig. 1) for manually rotating the shaft for proper timing, back-up and for other purposes.

The train of gears 135 drive a large gear or pinion 137 on the end of the impression cylinder 12 and this gear or pinion in turn meshes with and drives the pinion 73 on the shaft 72 of the upper roller 69 and the pinion 138 on the shaft 116 of the impression roller 63.

To the shaft 105 for the drum or cylinder 12 at the side of the machine opposite to that shown in Fig. 3, is secured a gear or pinion 139 (Fig. 6) and a crank arm 141 to which is pivotally mounted a link 142, the other end of the link being connected to a crank arm 143 mounted on the end of the transverse shaft 68 carrying the pinions or gears 67 for reciprocating the rack bars 66, carriage 64 and feeding mechanism carried thereby for feeding the mailing pieces. The gear or pinion 139 is in meshing engagement with a pinion or gear 144 and a train of gears 145 (Fig. 6) for operating the conveyor drive shafts 146 and 147 for driving the conveyor belts 118 and 125 of the conveyor systems 117 and 124, respectively, and for driving the shaft for the roller 122 (Fig. 2). The impression roller 63 like the roller 69, is rotatably mounted in roller bearings 148 and tensionally maintained in contact with the cylinder 12 by carrying the ends of the shaft 116 in spring-loaded and adjustably mounted bearing blocks 149 slidably adjustable in the frame (Figs. 3 and 6).

From the above description and the disclosure in the drawings, it will be apparent that the present invention comprehends a novel addressing machine for duplicating or transferring addresses or other information printed in hectographing ink in reverse on folded cards directly onto individual mailing pieces or other items, such machine including novel means and mechanism for supplying these cards and individual separate mailing pieces in accurately timed relation to a printing station such as an impression cylinder and a spring-loaded impression roller, and means for preventing supply of a card to the printing station upon the failure of a mailing piece to be supplied. When these cards contain the names and addresses of intended recipients, the operator is assured of employing each card and imprinting each mailing piece in the sequence intended.

It will also be apparent that applicant provides a novel addressing machine with driving or actuating mechanism that operates continuously but which permits the operator to reload or replenish the supply of cards and mailing pieces without stopping the machine. By employing the novel common driving mechanism for actuating the component parts of the machine, the cards and mailing pieces are supplied, the mailing pieces are moistened in a prescribed area where the printing is to take place, the actual printing and the subsequent separation and collection of the cards and of the imprinted mailing pieces in the sequence in which they were initially fed is all accomplished in accurately timed relation.

By means of such novel construction and assembly, applicant provides a most compact and efficient machine in which an operator standing at one side of the machine can from that position and vantage point readily and easily reach and effectively accomplish all of the required operations in the continuous functioning of the machine.

Having thus disclosed the invention, I claim:

1. In an addressing machine for feeding folded printing cards and mailing pieces to an impression cylinder and for transferring data from the cards to the mailing pieces, said cards comprising an upper fold and a lower flap printed in hectographing ink with the upper fold having a cut-out for exposing and transferring the printed matter on the flap to a mailing piece upon contact therewith, means for feeding individual cards from a stack thereof to the cylinder, means for feeding individual mailing pieces to the cylinder in timed relation with the cards, means for locking the card feeding means against operation and means actuated by the feeding of a mailing piece to the cylinder for releasing said locking means and including one or more spring-loaded feelers mounted for pivotal movement and urged toward continuous contact with the exterior of the cylinder and into the path of the individual mailing pieces when fed to the cylinder, said feeler when engaged by a mailing piece tripping said locking means and permitting operation of the card feeding means.

2. In a machine for printing addresses and the like from individual folded printed cards to individual mailing pieces and the like, said cards containing an upper and a lower fold with the lower fold printed in hectographing ink for transferring the printed matter to the mailing pieces upon contact therewith, a magazine for supporting a stack of said printed cards and a magazine for supporting a stack of said mailing pieces to be addressed from the cards, an impression cylinder, a reciprocating carriage for supplying individual cards from the base of the stack containing these cards to the cylinder, a reciprocating carriage for supplying individual mailing pieces from the base of the stack containing these pieces to the cylinder in timed relation with the cards, and mechanism associated with the cylinder for maintaining the card supplying carriage inoperative until a mailing piece has been supplied to the cylinder and including means for locking the card supplying carriage against reciprocation and a pivotally mounted feeler urged toward continuous contact with the exterior of the cylinder and into the path of the individual mailing pieces when fed to the cyl-

inder, said feeler when engaged by a mailing piece tripping said locking means and permitting operation of the card feeding means.

3. In a machine for printing addresses or other information printed in hectographing ink on individual folded cards and transferring this information from the individual cards to individual mailing pieces and the like, an impression cylinder, means for supplying the individual folded cards to the cylinder in predetermined sequence for the printing operation, means for feeding individual pieces to be printed to the cylinder for receiving the imprint from the folded cards, continuously driven operating means for feeding the individual folded cards and pieces to the cylinder in accurately timed relation, and means for rendering said card feeding means inoperative except when a piece to be printed is supplied to the cylinder, said last mentioned means including a trip arm connected at one end to the card feeding means and having its other end free, a trigger arm, and a spring-biased arm having one end thereof free and urged into contact with the exterior of the rotating cylinder, means for pivotally mounting and connecting the other end of said spring-biased arm to an end of the trigger arm with the other end of the trigger arm adapted to engage and maintain the free end of the trip arm against rotation until the trigger arm is rotated and its other end disengaged from the free end of the trip arm upon engagement of the free end of the spring-biased arm by a mailing piece.

4. A printing machine for printing directly onto individual mailing pieces and the like an address or other information printed on individual folded cards in hectographing ink, comprising a magazine for receiving a stack of the individual folded cards and a magazine for receiving a stack of the individual mailing pieces, an impression cylinder, mechanism for feeding the individual folded cards from the magazine therefor to the cylinder, mechanism for feeding the individual mailing pieces from the magazine therefor to the cylinder in timed relation with the feeding of the individual folded cards, means associated with the card feeding mechanism for locking the latter in inoperative position and including a pair of pivotally mounted arms one connected to the card feeding mechanism and notched for locking engagement with an end of the other arm, and means including a spring-biased member urged toward contact with the cylinder and actuated by the feeding of a mailing piece to the cylinder for tripping said locking means and initiating the card feeding mechanism.

5. In an addressing machine for feeding to an impression cylinder individual folded address cards and mailing pieces to be printed from separate stacks of such folded cards and mailing pieces, an impression cylinder, continuously operated drive mechanism, movable actuating members operated by the drive mechanism for supplying individual folded cards and mailing pieces to the cylinder in timed relation, and locking mechanism connected to the card actuating member for holding this member against movement whenever the mailing piece actuating member fails to supply the cylinder with a mailing piece, said locking mechanism including a trip arm connected at one end to the actuating member for supplying the individual folded cards and having its other end free, a trigger arm and a spring-biased feeler urged into contact with the cylindrical surface of the cylinder and rotatable upon engagement with a mailing piece supplied to the cylinder by the mailing piece actuating member, said trigger arm being connected at one end to the feeler and its other end being free but adapted to engage the free end of the trip arm and maintain the free end of the trip arm against rotation until the trigger arm is rotated upon the feeler being engaged by a mailing piece.

6. In an addressing machine for printing onto individual pieces data printed in hectographing ink on individual folded printed cards, magazines for receiving stacks of the individual pieces to be printed and of the folded cards, means for feeding the individual pieces to be printed and the printed folded cards to a printing station in predetermined sequence and in timed relation including reciprocating carriages for feeding the individual pieces to be printed and the folded cards, means for rendering the card feeding means inoperative upon failure of the piece feeding means to supply a piece to be printed including a spring-loaded and pivotally mounted feeler actuated by contact with a piece to be printed when fed by its carriage, a trigger arm adapted to be rotated by the feeler upon the latter being rotated by contact with a piece to be printed, a trip arm connected and adapted to reciprocate the carriage for feeding a folded card to the printing station and means for locking said trip and trigger arms against relative rotation when the carriage for the pieces to be printed fails to deliver a piece for printing, and means for automatically separating the folded cards and printed pieces and collecting them in the sequence in which they were initially supplied to the magazines.

7. In an addressing machine for feeding to an impression cylinder individual folded address cards and mailing pieces to be printed from separate stacks of such cards and mailing pieces, means for feeding the individual cards to the cylinder, means for feeding the individual mailing pieces to the cylinder in timed relation with the cards, means for locking said first mentioned feeding means against operation until a mailing piece is being supplied to the cylinder, and means actuated by the feeding of a mailing piece to the cylinder for releasing said locking means and including a pivotally-mounted spring-loaded arm having an end urged toward continuous contact with the cylinder and into the path of the individual mailing pieces when fed to the cylinder, said end of the arm in contact with the cylinder when engaged by a mailing piece on the cylinder tripping said locking means and permitting operation of the card feeding means.

8. In an addressing machine for feeding individual folded address cards and individual mailing pieces to a continuously rotating impression cyliner and for transferring data from the folded cards to the mailing pieces, means for feeding individual folded cards to a printing station adjacent the lower surface of the cylinder, a magazine for receiving a stack of the folded cards, means for feeding individual folded cards in sequence from the base of the card magazine to the printing station of the cylinder, means for feeding individual mailing pieces to the upper surface of the cylinder, means controlled by the feeding of a mailing piece to the cylinder for initiating the feeding of a folded card to the printing station of the cylinder, and means for automatically separating and collecting the folded cards and the printed mailing pieces in the sequence in which they were fed to the cylinder, said last mentioned means including spaced, arcuate-shaped plates substantially conforming to the contour of the cylinder and extending from the upper surface of the cylinder to beyond the printing station on the cylinder for maintaining the individual mailing pieces on the continuously rotating cylinder beyond the printing station where the data from the folded cards is transferred to the mailing pieces, the spacing of said plates being greater than the width of the folded cards whereby the cards are fed between the spaced plates to the printing station of the cylinder and are released between said plates upon leaving the printing station with the printed mailing pieces carried beyond the printing station and discharged from the ends of the plates remote from the printing station.

9. In a continuously driven addressing machine for transferring onto separate mailing pieces information printed in hectographing ink on separate, folded printing cards, a rotating impression cylinder having a printing station at which the reverse printed matter on the folded cards is transferred to the mailing pieces, separate magazines for receiving stacks of the folded cards and of the mailing pieces, means for feeding individual mailing pieces to the upper surface of the cylinder, means controlled by

the feeding of a mailing piece to the cylinder for initiating the feeding of a folded card to the cylinder, means for automatically separating the folded cards from the printed mailing pieces including spaced, narrow plates arranged in edgewise relation and extending from the upper surface of the cylinder to beyond the printing station for supporting the mailing pieces on the cylinder and directing these mailing pieces from the point of delivery and over the printing station, said plates being spaced apart an amount greater than the width of the printing cards whereby these cards are fed therebetween to the printing station and are free to drop between said plates upon leaving the printing station and thereby separate from the printed mailing pieces while the mailing pieces are carried therebeyond for delivery at the ends of these plates, and means for separately collecting the folded cards and the printed mailing pieces, said machine being so constructed and arranged

whereby the magazines are filled and the separated folded cards and the printed mailing pieces are removed by the operator after printing from a position at one side of the machine.

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