

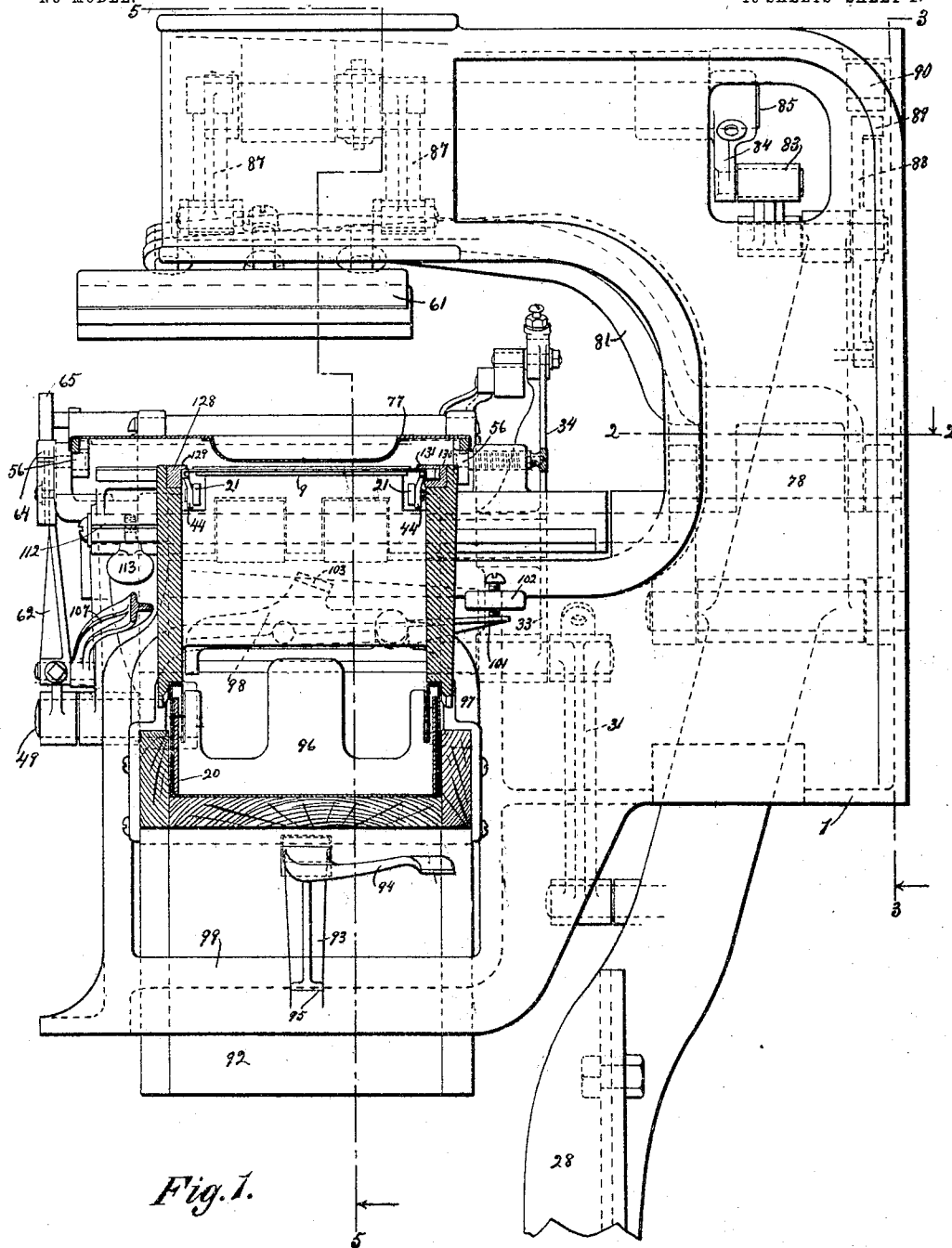
No. 764,660.

PATENTED JULY 12, 1904.

J. S. DUNCAN.
ADDRESSING MACHINE.
APPLICATION FILED JUNE 27, 1903.

NO MODEL.

10 SHEETS—SHEET 1.



WITNESSES:
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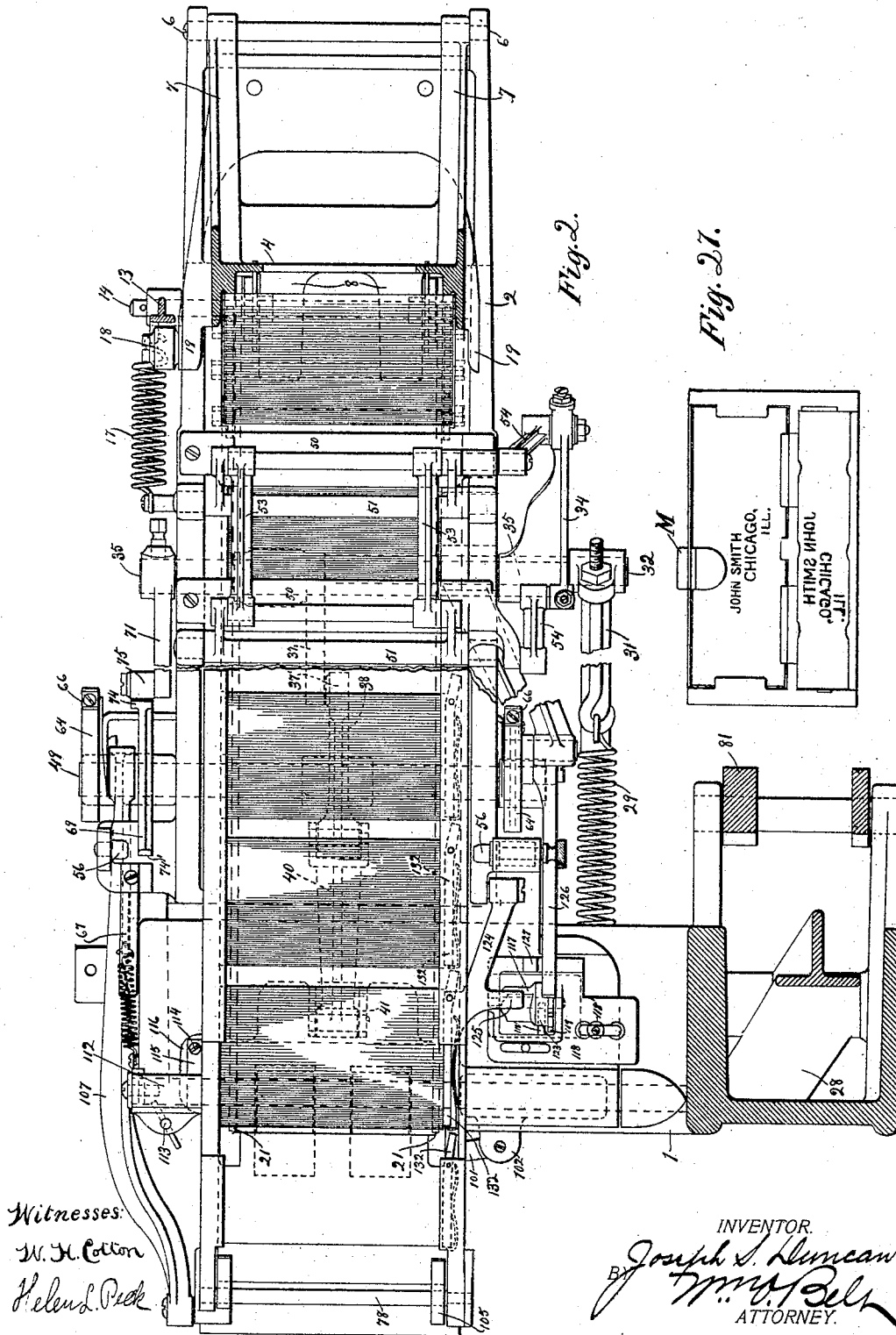
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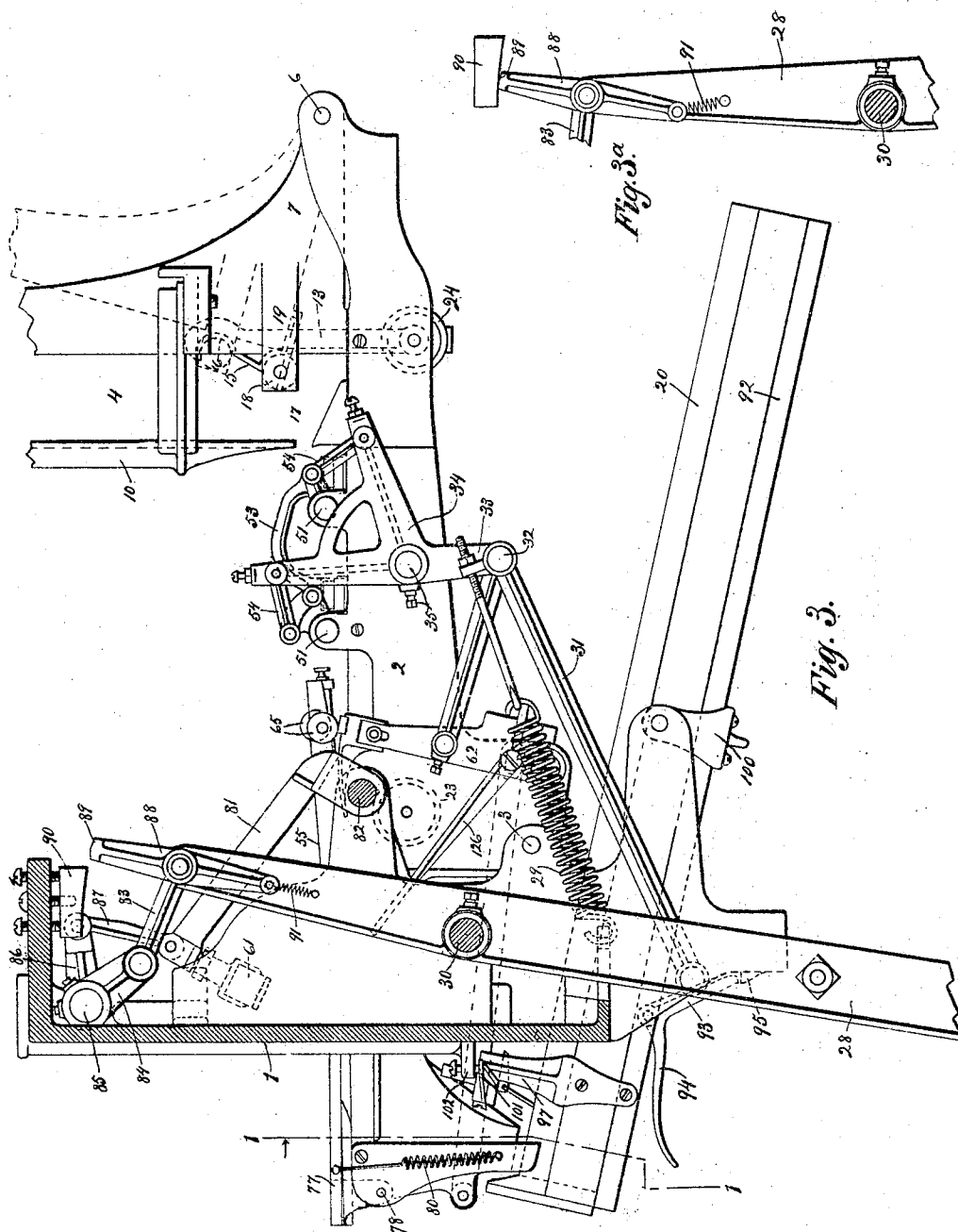
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WITNESSES:

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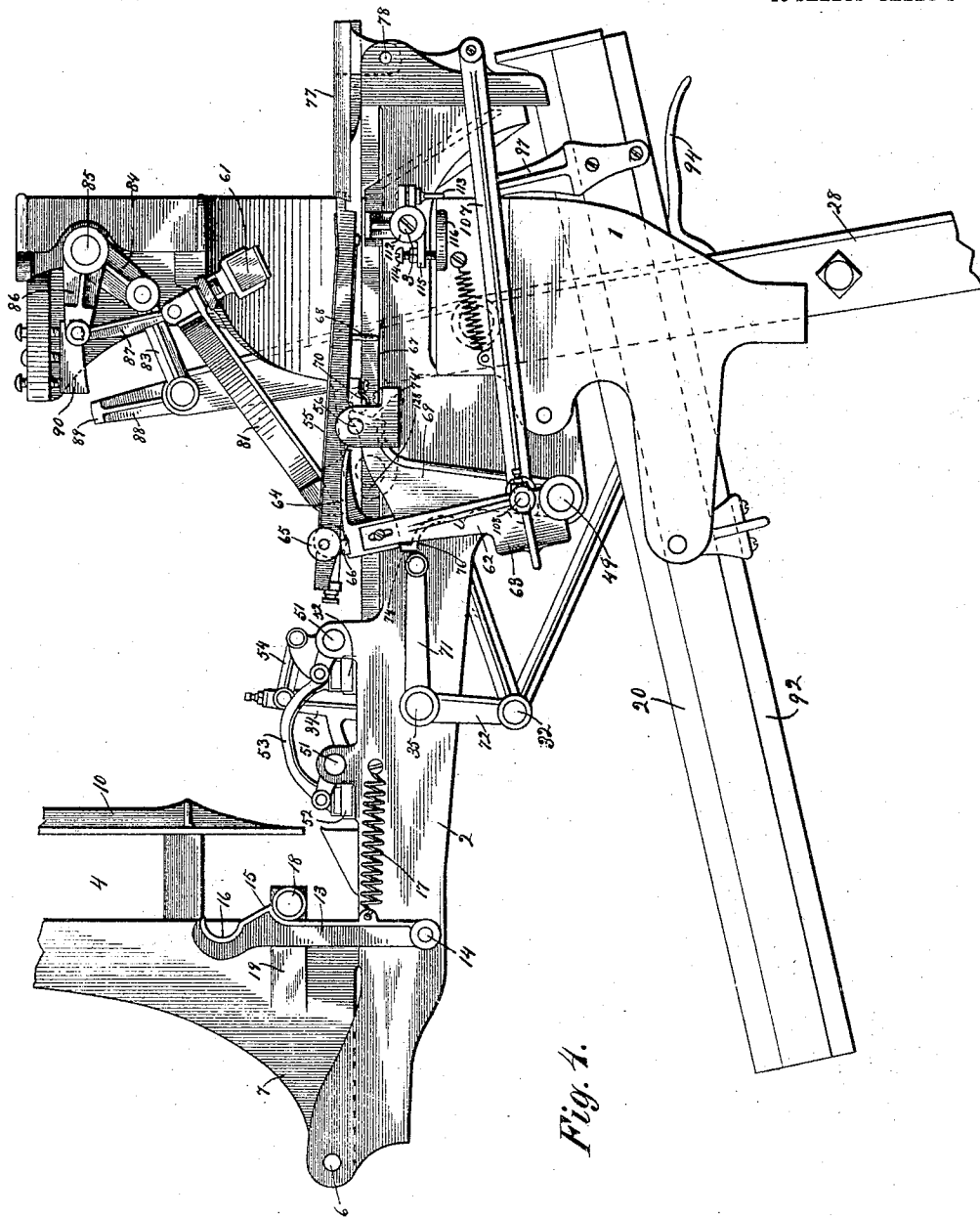


Fig. 4.

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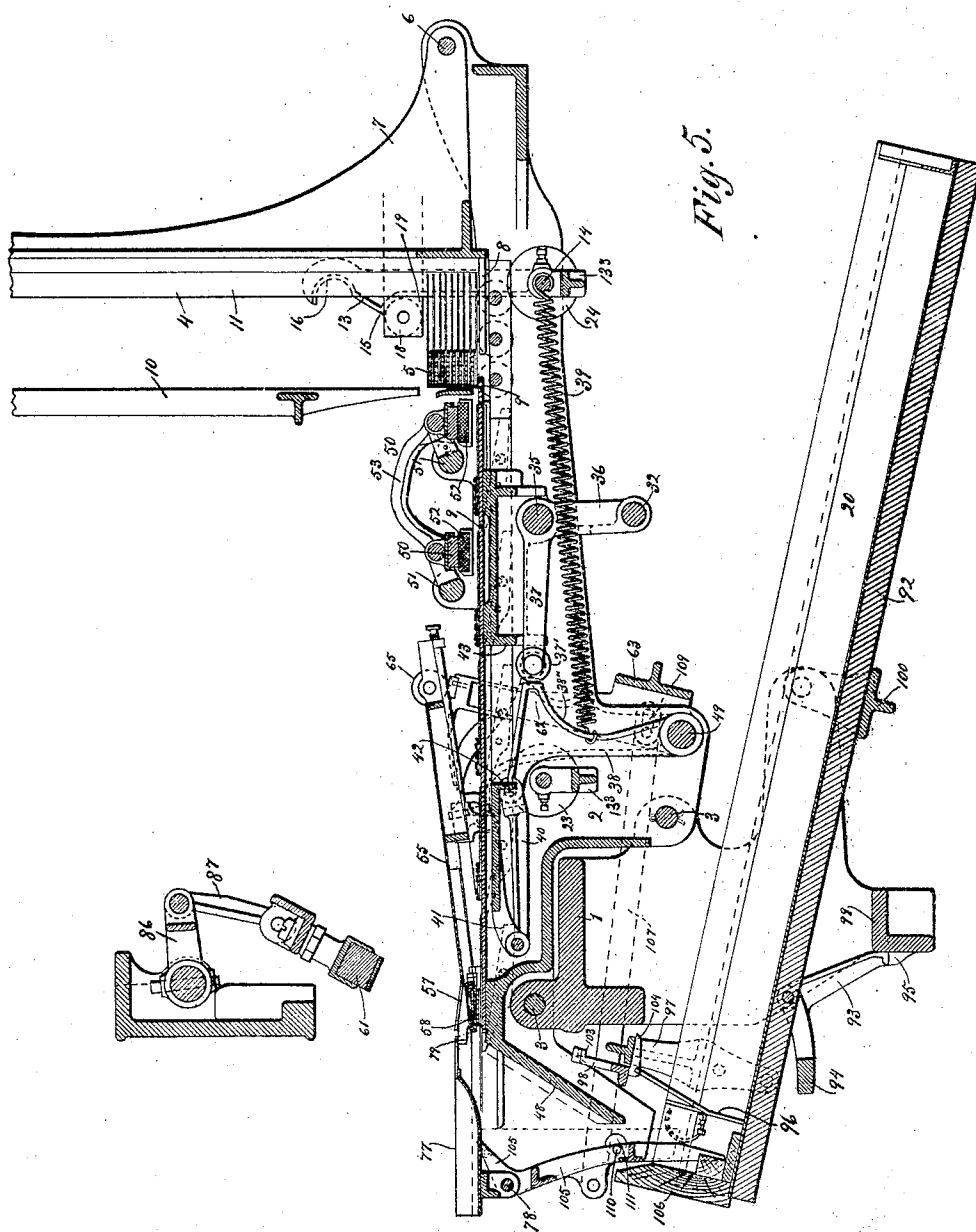


Fig. 5.

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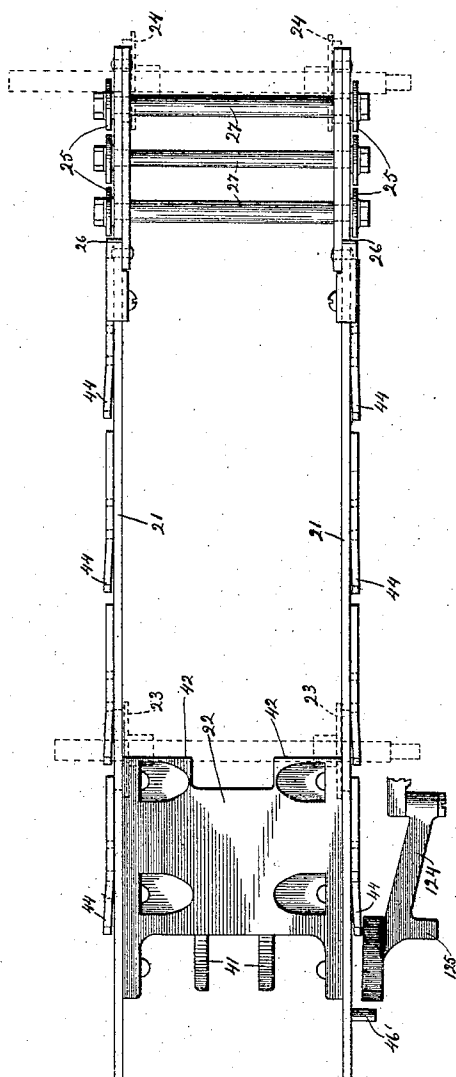


Fig. 6.

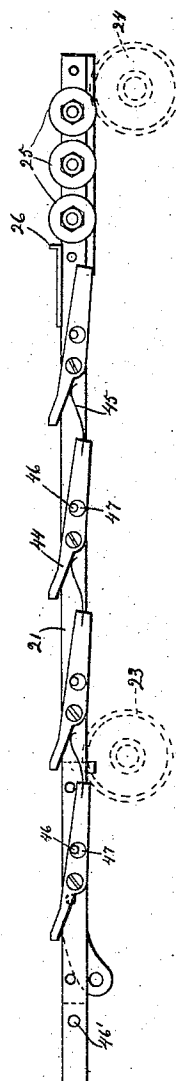


Fig. 7.

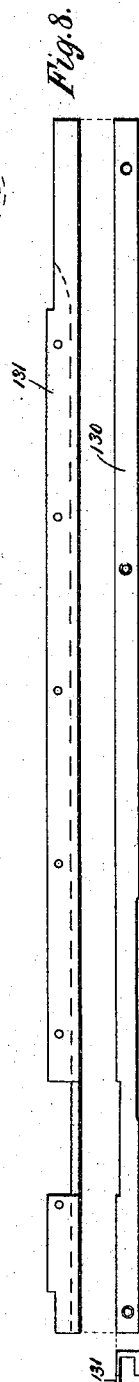


Fig. 8.

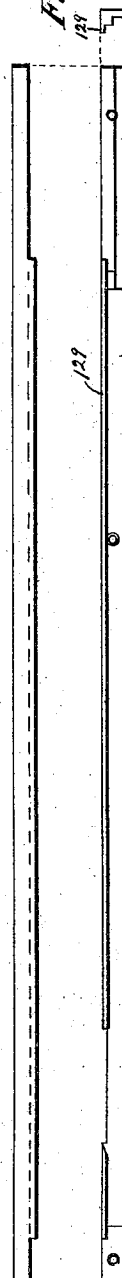


Fig. 9.

Fig. 10.

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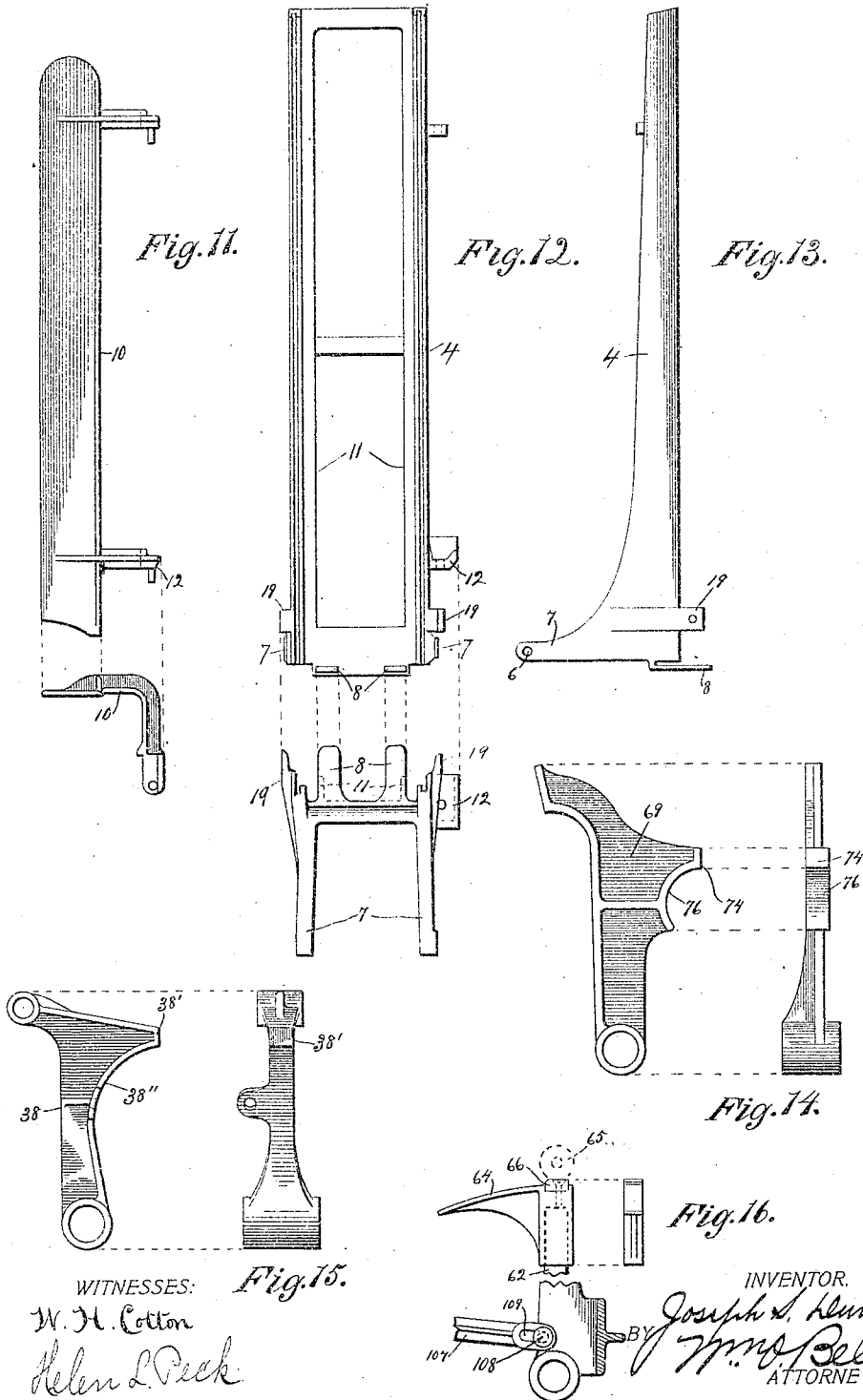
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10 SHEETS—SHEET 8.

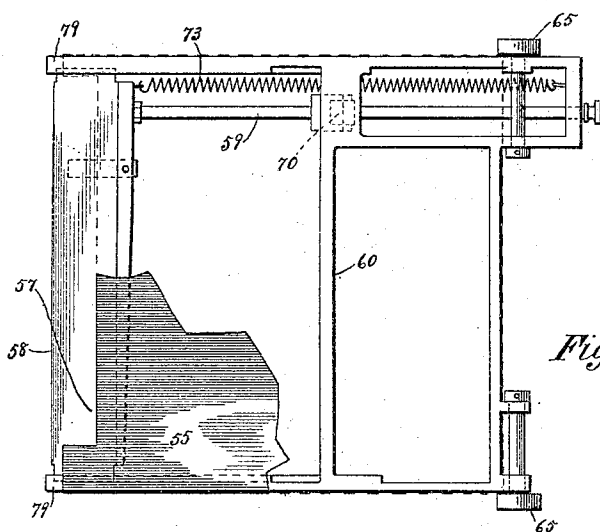


Fig. 17.

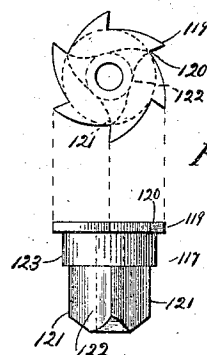


Fig. 18.

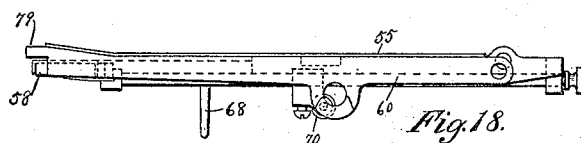


Fig. 19.

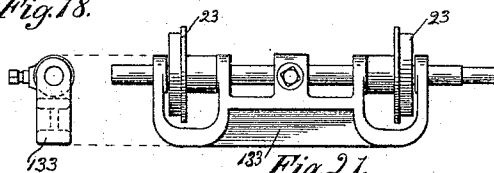


Fig. 20.

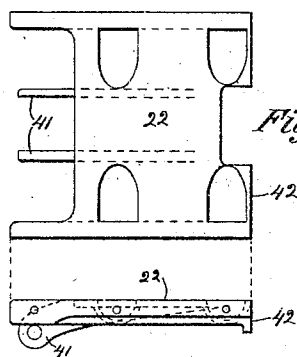


Fig. 21.

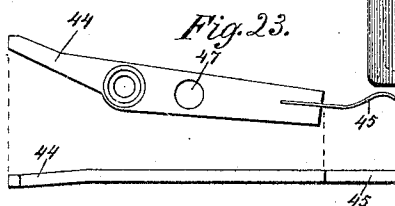


Fig. 22.

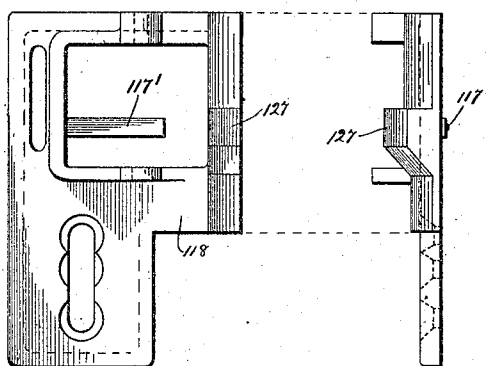


Fig. 23.

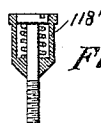


Fig. 24.

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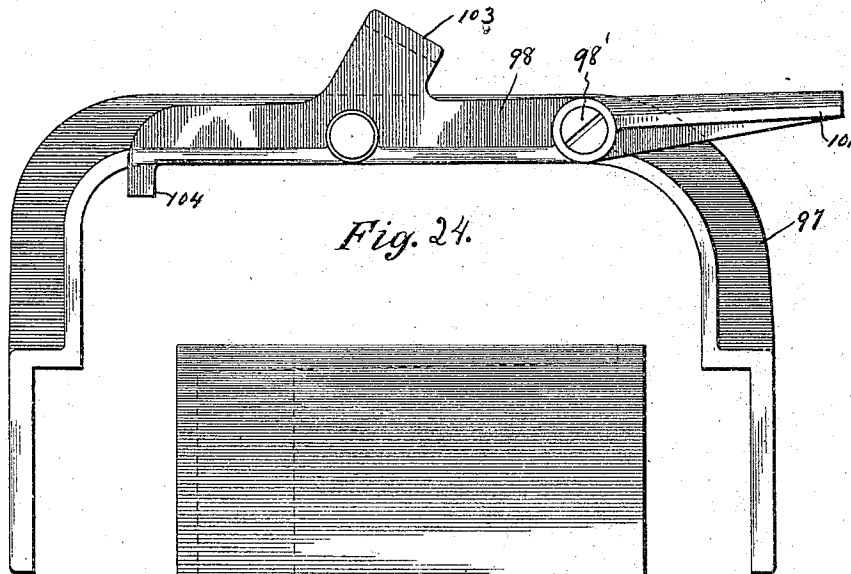


Fig. 24.

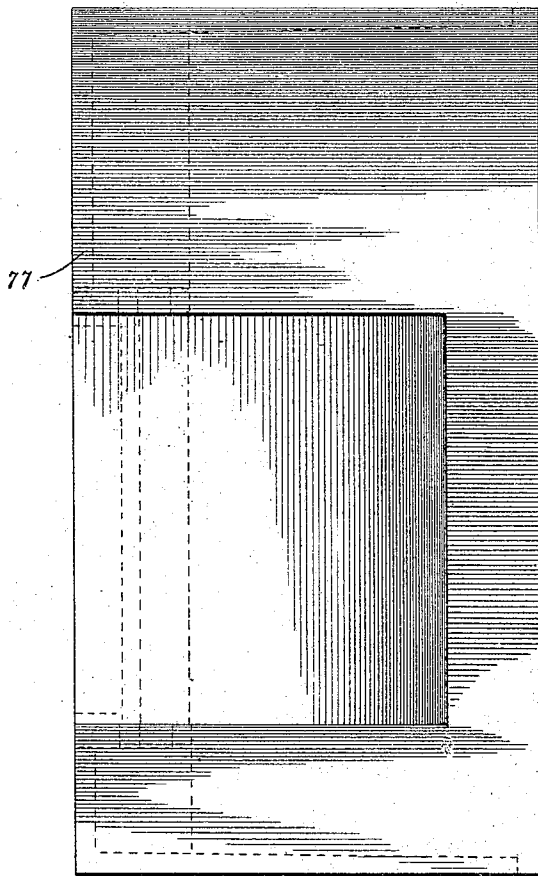


Fig. 25.

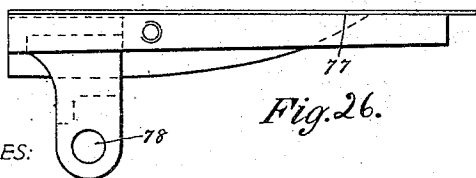


Fig. 26.

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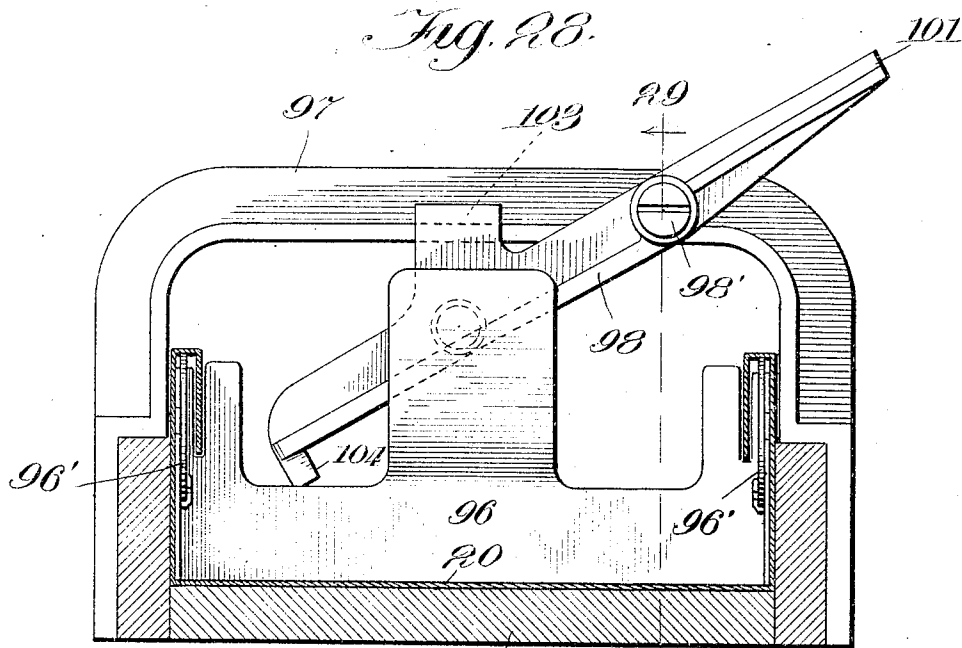
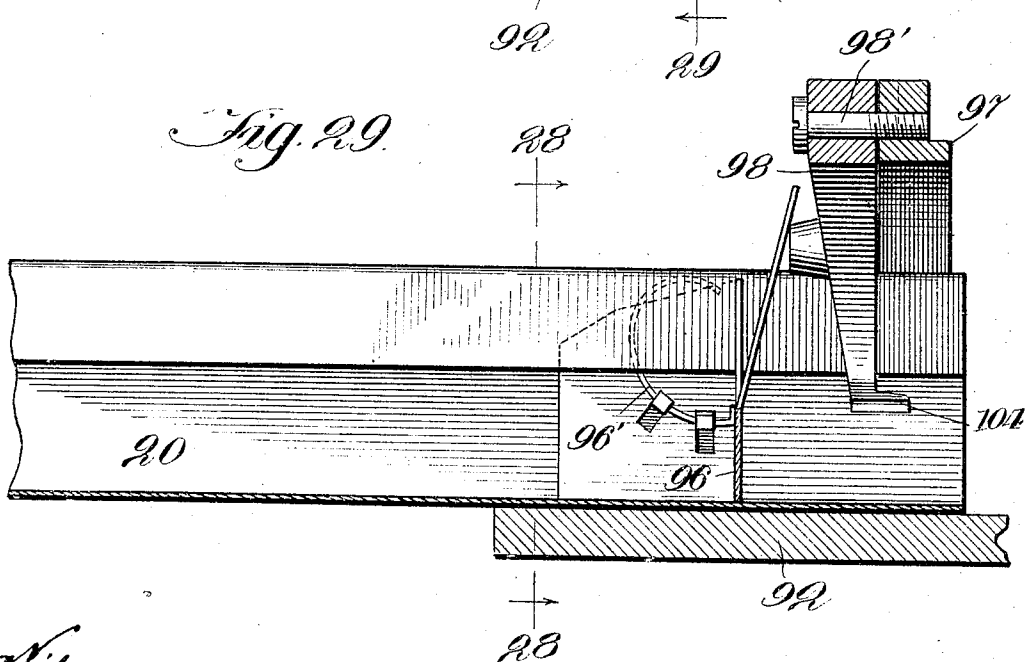
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NO MODEL.

10 SHEETS—SHEET 10.



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Rita Winter

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Attorney

UNITED STATES PATENT OFFICE.

JOSEPH S. DUNCAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO ADDRESSOGRAPH COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ADDRESSING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 764,660, dated July 12, 1904.

Application filed June 27, 1903. Serial No. 163,433. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. DUNCAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Addressing-Machines, of which the following is a specification.

This invention relates to improvements in machines for printing addresses or other subject-matter on envelopes or other material from independent and unconnected printing devices.

It is the object of this invention to provide a machine of simple construction and automatic action which can be easily operated to carry a number of separate printing devices one at a time from a supply into printing position and then take a clear and distinct impression therefrom.

The invention also has for its object to provide a machine which is adapted to receive at one time a number of printing devices which are arranged in a tray in accordance with and forming part of a card-index system, ink and feed them one at a time to printing position, take an impression therefrom, and then deposit them in regular order in the tray.

The invention also has other objects in view and discloses many important features of novelty, which will also be fully pointed out hereinafter in the detailed description of the accompanying drawings, showing one manner in which the machine may be embodied.

Referring to the drawings, Figure 1 is a sectional elevation of the front of the machine on the line 1 1 of Fig. 3. Fig. 2 is a horizontal sectional view on the line 2 2 of Fig. 1 with the envelop-plate removed. Fig. 3 is a vertical sectional view on the line 3 3 of Fig. 1, showing one side of the machine mostly in elevation. Fig. 3^a is a detail view of the locking device. Fig. 4 is an elevation of the other side of the machine. Fig. 5 is a longitudinal sectional view on the line 5 5 of Fig. 1. Figs. 6 and 7 illustrate the carrier. Figs. 8 and 9 illustrate the guides for the printing devices. Fig. 10 shows a friction-dog. Fig. 11 is a front elevation and bottom plan view

of the hinged front of the magazine. Fig. 12 is a front elevation and bottom plan view of the magazine with the front removed. Fig. 13 is a side elevation of the magazine with the front removed. Figs. 14 to 16 show details. Figs. 17 and 18 show the envelop-plate, the former being a top plan view, but showing only a fragment of the plate 55. Fig. 19 shows the governor. Figs. 20 to 26 show details. Fig. 27 illustrates a printing device which consists of a card-index holder carrying a printing-plate. Fig. 28 is a sectional view on the line 28 28 of Fig. 29 and shows the arm 98 in position behind the follower 96 to move it forward in the tray when the latter is pushed back into position on the support 92. Fig. 29 is a sectional view on the line 29 29 of Fig. 28.

I have shown my improved addressing-machine adapted for use in connection with the printing device covered by Letters Patent No. 692,994, dated February 11, 1902, and the tray for holding said devices disclosed in my application, Serial No. 154,519, filed April 27, 1903; but other printing devices and trays can be used, and it will be distinctly understood that I do not in any way restrict this invention to a construction adapted for or to its use with the printing device and tray described in said patent and application. In the patent aforesaid a printing-plate or a printing-form made up of rubber type is carried by a card-index holder, and hereinafter in referring to a "holder" I desire to be understood as meaning and comprehending any suitable device carrying a printing-form or any other kind of printing device which can be used with my machine with or without adapting the machine specifically thereto.

Like numerals of reference indicate corresponding parts in the several figures of the drawings, and, referring thereto, 1 designates the supporting-frame, and 2 the bed-frame, which are held together by tie-rods 3 and constitute the frame of the machine. The magazine 4 for the holders 5, Fig. 5, is pivotally mounted on the rear end of the bed-frame by a pin 6, which passes through the rearwardly-

extending lugs 7 on the magazine. The holders 5 are held in place in the magazine by a front 10, which is pivotally mounted on the magazine. For this purpose I preferably employ one or more shutter-hinges 12, or hinges of like character, which will prevent the front from swinging when in closed or open position. The holders rest upon the projections 8, Figs. 12, 13, when the magazine is tilted; and upon the rear end of the bed 9, Fig. 5, and the rollers 25 when the magazine is in an upright position. The magazine is held rigidly in upright position by means of an arm 13, which is mounted on a rod 14 and provided with a shoulder 15 and a socket 16 above the shoulder. A spring 17, Fig. 4, is fastened to the bed-frame and to said arm and normally holds it in an upright position, with the roller 18 on one of the guide-brackets 19 on the magazine in engagement with said shoulder. When it is desired to fill the magazine, the front is thrown open and the rear end of the tray 20 is inserted between the guide-brackets 19 into the bottom of the magazine. Then the tray is turned to upright position in the magazine and both are tilted back, as shown in dotted lines in Fig. 3, so that the tray can be removed, leaving the holders in the magazine in a compact and even stack. In thus tilting the magazine sufficient force is applied to overcome the tension of the spring 17 and carry the roller 18 up over the shoulder and into the socket 16. The swinging front 10 is then closed and the magazine moved into upright position. The holders will be arranged in the magazine in the same way in which they were arranged in the tray, with the last holder in the tray at the bottom of the magazine, so that they will be moved to printing position, as hereinafter described, in reverse order of their arrangement, and consequently they can be repacked in the tray after the printing operation exactly as they were originally arranged therein. This is an important feature of my invention, because the arrangement of the holders in accordance with a card-index system can be constantly maintained. The holders are carried one by one from the bottom of the magazine into printing position by means of a carrier, Figs. 6, 7, which comprises the side bars 21, fastened to the head 22, located between said bars, near the forward ends thereof. This carrier is reciprocated beneath the bed 9, and the side bars travel on the rollers 23 and 24. At the rear end of the carrier are a series of antifriction-rollers 25, which travel beneath the stack of holders in the magazine and hold the same elevated above the hooks 26, which are arranged to engage the top edge of the bottom-holder when the carrier is beginning its forward movement to carry said holder from the magazine and one step toward the printing operation. These rollers also facilitate the movement of the carrier beneath the holder, and they are mounted on shafts 27, one or

more of which may be shouldered for the purpose of holding the rear ends of the side bars 21 rigidly together in proper position.

The pedal-lever 28 is pivoted at 30 to the supporting-frame, and a link 31, pivoted to the pedal-lever at 31', connects said lever to a shaft 32, carried by an arm 33 of the crank 34, which is rigidly mounted on the rock-shaft 35. The heavy spring 29 moves the carrier forward from its rearward position, and it is adjustably connected at one end to the rear end of the link 31, and its other end is fastened to the supporting-frame. The rock-shaft 35 carries a loose bell-crank, Fig. 5, one arm, 36, of which receives the shaft 32 and the other arm, 37, carries an antifriction-roller 37' in engagement with the rocker-arm 38, which is mounted on the shaft 49 and held under the tension of a spring 39, lighter than the spring 29 and tending to pull said arm rearwardly. This rocker-arm is connected by a link 40 with the lugs 41 on the head of the carrier. The rocker-arm 38, Fig. 15, has a plane face 38' to provide a short lost motion at the upward limit of movement of the crank-arm 37 and a rest therefor and a curved cam-face 38'', against which the antifriction-roller 37' travels. When the pedal-lever is pushed rearward against the tension of the spring 29, the shaft 35 will be rocked to carry the crank-arm 37 downward off of the plane face 38' and against the curved face 38'', and thus permit the spring 39 to pull the rocker-arm 38 rearward, and thereby move the carrier back to get a holder from the magazine. The spring 29 thus normally holds the pedal-lever in position to prevent the movement of the carrier, and when said lever is moved rearward this spring is extended, while the spring 39 contracts, and when the pedal-lever has completed its rearward stroke the spring 29 pulls it and the carrier forward and stretches the spring 39. The carrier is limited in its rearward movement by the rear end 42 of its head engaging with the fixed stop 43 on the bed-frame, and the engagement of the roller 37' with the cam-face 38'' causes the carrier to move evenly and without jerking.

A number of feed-dogs 44 are pivotally mounted at 44' on the side bars of the carrier, Figs. 6, 7, and project above said bars to engage the top edges of the holders at their ends and feed them along the bed step by step from the magazine to printing position. These feed-dogs are held up to their work by gravity; but springs 45 may be provided to insure that they will properly engage the holders. The dogs are adapted to swing slightly on their pivots when moving back under the holders and are limited in their swinging movement by pins 46 on the side bars, operating in openings 47 in the dogs. When the carrier starts forward from its rearward position, the hooks 26 will engage and carry forward one step the bottom holder in the stack, and thereafter at

each operation of the machine this holder will be carried forward by a pair of the feed-dogs until it reaches printing position. When the machine is in full operation, five holders will be located at intervals on the bed; but this is not an arbitrary construction and may be varied without departing from the invention. The forward pair of feed-dogs discharge the holder from printing position into the tray, the bed-frame being provided with an inclined front 48 to guide the holder as it slides down into the tray.

The printing-forms are each inked twice after they leave the magazine by an inking device comprising a pair of pads 50, carried on the arms of crank-shafts 51 and operated by the crank 34. The inking-pads 50 swing forward from the supply-pads 52 into engagement with the adjacent type-forms, while the holders remain at rest during each rearward movement of the carrier, and when the carrier moves forward these inking-pads swing back to the position shown in Figs. 3 and 5 upon the supply-pads. The inking operation is coincident with the printing operation and the rearward movement of the pedal-lever, and each form will be inked a second time by this inking device. The two inking-pads are carried by the holder 53, and the two upwardly-projecting arms of the crank 34 are connected to the arms of the crank-shafts by links 54.

My invention is especially adapted for printing addresses; but it will be understood that so far as the machine is concerned any subject-matter can be printed upon any suitable material. A plate 55, Figs. 17, 18, to support the material to be printed on and designated for convenience an "envelop-plate" is pivotally mounted on the machine on the studs 56, Fig. 2, and it is provided with an opening 57, through which the printing-form prints upon the material. A sliding pad 58 is carried by a rod 59 beneath said plate in the plate-frame 60, and this pad is arranged to engage the form which is in printing position immediately after it reaches that position and until the platen 61 starts on its downward movement, which takes place, as hereinafter described, on the rearward movement of the pedal-lever. This pad is provided for the purpose of distributing the ink evenly over the form and to remove surplus ink; but, if desired, the pad may be utilized as an additional inking-pad for the form and also for the dating-form hereinafter described. Arms 62 are mounted on the shaft 49 and are connected together by a tie 63. Each of these arms carries on its upper end a shoe 64, Fig. 16, which rides beneath a roller 65 at the rear end of the envelop-plate and holds the envelop-plate in tilted position. A heel 66 on the shoe engages the roller at the limit of the forward movement of the arm and causes the pad to contact with the form. When the

heels are moved from beneath the rollers, a flat spring 67 on the frame and engaging the post 68 on the under side of the envelop-plate, Fig. 4, throws the forward end of the envelop-plate up sufficiently to release the pad from contact with the form and permit of its retraction. It will be observed that only a comparatively slight tilting movement of the envelop-plate is required to permit the pad to be moved into and out of contact with the form, and this movement is afforded entirely by the heels, which cause the pad to make a proper contact and quickly release it when the pedal-lever is moved rearward. I provide the lost motion hereinbefore mentioned between the crank-arm 37 and the rocker-arm 38, so that the heels will not throw the pad down into contact with the form until after the carrier has brought the form into printing position and come to rest and also to release the pad from contact with the form before the carrier begins its rearward travel. The pad is normally held in its forward position beneath the envelop-plate, as shown in Fig. 5, to contact with the form by means of an arm 69, Fig. 4, on the shaft 49, which engages a roller 70 on the rod 59 and pushes the pad forward. This arm is pushed forward by one arm, 71, of a bell-crank rigid on the shaft 35, with its other arm, 72, connected to the shaft 32. The rock-shaft 35 thus carries the crank 34, which operates the main inking device and the envelop-plate tilting arms, the bell-crank which operates the rocking arm 38, and the bell-crank which operates the arm 69, and each of these cranks is connected also to the shaft 32, whereby the coincident movement of all three cranks is positively insured. A spring 73, Fig. 17, retracts the pad 58 when the shaft 35 is rocked to carry the crank-arm 71 down and permit the arm 69 to swing back. This arm 69, Fig. 14, has a plane face 74, which provides a lost motion similar to that provided by the plane face 38' of the arms 38, so that the retractive movement of the pad 58 will not begin until after the pad is raised out of contact with the form. Beneath the plane face 74 is a socket 76, into which the roller 75 slips, so that the arm 69 may swing rearward with a quick movement, and thus permit the spring 73 to retract the pad quickly.

A supplemental envelop-plate 77, Fig. 5, is pivotally mounted at 78 on the front of the bed-frame, and its rear end rests upon the forward ends 79 of the frame of the main envelop-plate. This supplemental plate is dish-shaped, as shown, to accommodate the fingers in arranging the envelop in position and removing it from the machine, and it is held in position in engagement with the main envelop-plate frame by a spring 80, Fig. 3, which is attached to the supplemental plate between its pivot and its rear end. When it is desired for any purpose to remove a holder

from the carrier, this supplemental envelop-plate can be swung forward on its pivot against the tension of its spring, and thus provide access to the forward end of the carrier. It
 5 will be observed that the spring 80 will hold the supplemental envelop-plate in either position.

The platen 61 is carried by an arm 81, Figs. 1, 3, which is mounted on a pivot 82 in the supporting-frame. This platen is operated
 10 by the pedal-lever through suitable connections, which comprise a link 83, connecting the upper end of the pedal-lever with the crank-arm 84 on the shaft 85, mounted in
 15 bearings in the top of the supporting-frame. This shaft also carries crank-arms 86, which are connected by links 87 with the end of the platen-arm. When the pedal-lever is operated, the upper end swings forward and rocks
 20 the shaft 85 to swing the platen-arm 81 on its pivot and carry the platen down into engagement with the envelop on the envelop-plate and cause it to contact with the form. On the return movement of the pedal-lever the
 25 platen is carried up to its elevated position.

It is important that the machine should never be operated less than a full forward or backward stroke, and I therefore provide a
 30 simple device for locking the pedal-lever against return movement until it has finished its forward or its backward stroke. This device comprises a locking-dog 88, pivoted at the upper end of the pedal-lever and having an upwardly-extending arm provided with an
 35 engaging-face 89, reversely inclined from its center to engage a block 90 on the supporting-frame. This locking-dog is held in position at all times in substantial alinement with the pedal-lever by means of a spring 91, fastened to said lever and to its downwardly-extending arm, so that its upper end is constantly in position to engage with the curved
 40 face of the block 90. This engaging face on the upper end of the locking-dog is formed so that when the pedal-lever carries the dog forward it will engage the block 90 and swing backward slightly against the tension of its spring 91 until it reaches a position in which one of the
 45 inclined faces is complementary to the curvature of the face of the block 90, which will permit the continued movement of the pedal-lever, Fig. 3^a; but if the pedal-lever should be brought to a stop before completing its rearward movement the crown formed by the
 50 juncture of the two inclined faces on the locking-dog would bind against the block 90 and prevent a reverse movement of the pedal-lever. Each complete stroke of the pedal-lever forward or rearward carries the locking-
 55 dog entirely across the face of the block 90, and if the pedal-lever is stopped before completing its stroke either forward or backward the locking-dog will bind against the block to prevent a reverse movement until the completion of the stroke. This is an important

feature of the invention, as the machine may be worked by unskilled operators, and it is therefore desirable to take every precaution against an improper operation of the carrier, which would tend to crowd the holders in their travel from the magazine and otherwise interfere with the proper feeding thereof.

When the holders in the tray have been discharged into the magazine, the tray is arranged beneath the machine to receive the
 75 holders as they are discharged after printing operation. The tray is rested upon a swinging support 92, which is adjusted to an inclined position, Fig. 5, by an arm 93, provided with a handle 94, and arranged to en-
 80 gage a stop 95 on the supporting-frame. This tray is provided with a follower 96, Figs. 1, 28, 29, which is held in adjusted position therein in a suitable manner, as by springs 96', which engage the tray. An arch 97,
 85 Figs. 1, 5, 24, 28, 29, is fastened to the tray-support and carries an arm 98, pivoted at 98'. The tray will usually be full of printing devices, and consequently the follower will be located at the back end thereof, and after the
 90 printing devices are discharged from the tray into the magazine the follower must be moved forward to the front end of the tray to support the printing devices as they are discharged into the tray from printing position.
 95 This can be done by hand before the tray is placed in position on the support; but to avoid the possibility of the operator neglecting to properly adjust the follower by hand I have provided the arm 98, which falls down into
 100 position, (shown in Figs. 28 and 29,) where it necessarily engages the follower and pushes it forward to the front end of the tray when the tray is pushed backward lengthwise into
 105 position on the support. In this way I entirely avoid the possibility of the tray being arranged to receive the printing devices without having the follower properly arranged to support them in upright position, for the tray cannot be arranged in proper position on the
 110 support without the arm falling into operative position to engage the follower, as previously described. In Fig. 5 the tray-support is shown supporting the tray in tilted position to receive printing devices discharged from
 115 printing position, and when it is desired to remove the tray and replace it with another the arm 93 is disengaged from the stop 95 to lower the tray-support until it rests upon its
 120 swinging bracket 100 and the main frame at 99. Where the tray-support is in its tilted position, as shown in Fig. 5, the end 101 of the swinging arm 98 is engaged with an adjustable stop 102, Fig. 1, which holds the
 125 arm up above the follower, so that the latter can move backward in the tray. When the tray-support is lowered, as previously described, the end 104 of the arm 98 is permitted to swing down into operative position, as shown in Fig. 28, and it remains in this
 130

position to engage the follower until the tray-support is raised to its tilted position again, whereupon the end 101 of the arm 98 will engage the stop 102 on the supporting-frame and swing the arm up from behind the follower, so that the latter can move backward in the tray as the holders drop therein. The arm 98 is limited in its downward movement by the lug 103 and in its upward movement by the lug 104, which engage the arch, Fig. 5.

I provide a packer for moving the follower and the holders in the tray back to provide room for the next holder at each operation of the machine. This packer 105, Fig. 5, is pivoted at the front of the bed-frame and extends down into the tray between the follower and its front 106. The packer is operated coincident with the rearward movement of the pedal-lever by means of a link 107, which connects the packer with one of the arms 62, the latter being provided with a pin 108 to operate in a slot 109 in said link, so that the movement of the packer will take place at the proper time. Furthermore, the movement of the packer is limited by a pin 110 thereon, which works in an opening 111 in the bed-frame. When a form-holder is discharged by the carrier from printing position, it will fall down over the inclined front 48 of the bed-frame and drop in an upright position face foremost into the tray between the follower and the packer. On the next rearward movement of the pedal-lever the packer will push the holder and the follower in the tray back a limited distance, so that a sufficient space will always be provided for the next holder discharged by the carrier, while at the same time the holders in the tray will be supported by the follower in an upright position. The packer maintains the holders in a compact and upright position, and it will be observed that the holders are repacked in the tray as they were before being discharged into the magazine.

As has been heretofore explained, the form-holders are moved along over the bed from the magazine to printing position step by step by the feed-dogs of the carrier. It is of course desirable and important that the holders shall move evenly and regularly and not bind on the bed or move too far at each step, and for this reason I provide a side guide 128, with a flange 129, Fig. 9, along one side of the bed and a channel-guide 130, with a flange 131, Fig. 8, along the other side of the bed, the holders being adapted to move on the bed with their ends beneath the flanges 129 131 of said guides. Both of said flanges are cut away at the printing position, Fig. 2, to permit a holder to be removed from the carrier when desired. Within the channel-guide 130 a number of spring-pressed friction-dogs 132, Fig. 10, are arranged to bear against the ends of the holders which travel in the channel-guide with sufficient pressure to hold the hold-

ers frictionally between said dogs and the side guide 128. This will prevent the holders from being advanced too far by the momentum of the carrier and also prevent the feed-dogs from disturbing the holders while traveling rearward thereunder. The forward friction-dog supports in a horizontal position the holder which is being discharged by the carrier until its forward end engages the heel 105' of the packer, which is shaped to deflect the forward edge of the holder (which is the bottom thereof) and cause it to slide down along the inner face of the packer. By thus supporting the holder in a horizontal position until it is wholly or about discharged off of the bed I prevent the holder from swinging down and binding on the end of the bed and also facilitate the discharge of the holder by the carrier into the tray.

In Fig. 21 I have shown a yoke 133, which is employed for spacing apart the rollers 23 and 24, so that they will properly support the carrier.

It may be desired to date each impression as it is made, and for this purpose I provide a split bracket 112, Figs. 1, 2, which is fastened on the end of the tie-bolt 3 by a thumb-screw 113 and adapted to receive a printing-form containing a date or any other subject-matter to print upon the envelop adjacent to each main impression. This bracket is adjusted in proper position by means of a screw 114, which operates through a lug 115 on the bracket and is adapted to bear against a lower lug 116 on the frame. When it is not desired to use the dater, it can be swung upside down on the tie-bolt by simply loosening the thumb-screw 113.

My machine so far described is adapted to take a single impression from each printing-form; but it may be desired to duplicate the impressions or to take a number of impressions from each form, and for this reason I provide a governor 117, Fig. 19, which is revolutely mounted in a plate 118, Fig. 22, adjustable on the frame and held by the fastening device 118', Figs. 2, 22^a. The governor illustrated is adapted to enable one, two, or an indefinite number of impressions to be taken from each form, and for this purpose it is provided at one end with six projections 119 and six depressions 120, at the other end with three projections 121 and three depressions 122, and between its ends with a round surface 123. It will be understood, of course, that these three parts of the governor may be disposed in other relations to each other than that herein shown and described, if desired. A stop-arm 124 is pivoted to the frame, and if arranged to engage the pin 46' on the carrier the latter will be held in stationary position and repeated impressions taken from the same form; but the arm may be adjusted so that one or two or more impressions can be taken from the same form, as desired. To

this end the arm is provided with a finger 125, which rides on the governor, and the latter is turned step by step by a rod 126, fastened to one of the envelop-plate-operating arms 62.

5 In Fig. 2 the rod 126 is shown arranged to turn the governor one step at each complete operation of the pedal-lever, and the finger 125 of the stop-arm rests alternately in a depression 122 to engage the pin 46' and on a projection 121 above the pin, so that duplicate impressions from each form will be taken.

10 If it is desired to repeat a number of times from each form, the governor-plate should be adjusted so that the rod 126 will not engage the projections 119 while the finger 125 still remains in one of the depressions 122.

15 In this adjustment the rod 126 may be permitted to rest on the round surface 123; but to avoid any possibility of the governor being turned I provide a lug 127 on the plate-frame to support the rod 126 when in this position. If a single impression is desired from each form, the governor-frame should be adjusted so that the finger 125 will rest upon the round surface 123, and as the rod 126 will not then engage the governor the latter will remain stationary, supporting the stop-arm above the pin 46'. A spring 117 bears against the under-side of the governor to hold it against

20 accidental movement.

While my machine comprises a number of parts and operations, it is characterized by simplicity and substantial construction. It will be apparent that the operation of taking

25 impressions from a tray full of holders and repacking the holders in the tray can be conducted with rapidity, while at the same time preserving the proper position of the holders in the tray. This enables me to arrange the form-holders in accordance with a card-index system and run them through the machine without destroying the arrangement. The envelopes can also be preserved, as they are printed in accordance with the subdivisions

30 of the system.

While machines of this character are very largely used for the purpose of addressing envelopes, they are also used for many other purposes—such as addressing letters, bills, &c.—and of course it is immaterial as regards the machine itself whether it is used to print an address or any other subject-matter and on any material. While the machine is in operation, five printing devices will be spaced apart at intervals on the bed-plate in advance of the magazine, and they are moved along to printing position without coming in contact with each other to avoid crowding and binding.

Without limiting myself to the exact construction and arrangement of parts herein shown and described, what I claim, and desire to secure by Letters Patent, is—

1. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, and a reciprocating carrier for

moving said printing devices spaced apart at intervals along the bed from the magazine to printing position.

2. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, and a carrier reciprocating beneath the bed to move the printing devices one by one and step by step from the magazine to printing position and space them apart on the bed at intervals.

3. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, and a reciprocating carrier provided at intervals lengthwise thereof with devices for engaging and moving the printing devices one by one and step by step along the bed.

4. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, and a carrier reciprocating beneath the bed to move the printing devices one by one and step by step from the magazine to printing position, said carrier comprising independent devices for separately engaging each printing device in its travel along the bed.

5. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, and a carrier reciprocating beneath the bed to move the printing devices one by one and step by step from the magazine to printing position, said carrier comprising independent feeding-dogs for separately engaging the ends of the printing devices on the bed.

6. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, and a carrier reciprocating beneath the bed to move the printing devices one by one and step by step from the magazine to printing position, said carrier comprising independent pivoted feeding-dogs for separately engaging the ends of the printing devices to feed them a step on the forward movement of the carrier and adapted to slide beneath the feeding devices on the rearward movement of the carrier without disturbing them.

7. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, and a reciprocating carrier for moving said printing devices along the bed from the magazine to printing position and comprising a head, side bars connected to said head, and feed-dogs pivotally mounted on said side bars and projecting above the same to engage and feed the printing devices on the forward movement of the carrier.

8. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, a reciprocating carrier for moving said printing devices along the bed from the magazine to printing position, antifric-tion-rollers at the rear end of the carrier arranged to travel beneath and support the

stack of printing devices in the magazine, and hooks on the carrier for engaging and moving the bottom printing device of the stack forward from the magazine.

9. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, means for moving said printing devices along the bed from the magazine to printing position, and independent friction devices arranged to act on all the printing devices during the feeding thereof from the magazine to the discharge end of the bed.

10. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, means for moving said printing devices along the bed from the magazine to printing position, and a series of independent friction devices to act against the ends of the printing devices while they are being fed to printing position.

11. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, means for moving said printing devices along the bed from the magazine to printing position, and spring-pressed friction-dogs arranged between the magazine and printing position to act upon one end of each of the printing devices being fed to printing position.

12. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, a carrier for moving said printing devices along the bed from the magazine to printing position, guides for the printing devices adjacent to the bed, and independent spring-pressed friction devices arranged lengthwise from end to end of one of said guides to act upon the ends of the printing devices traveling adjacent thereto.

13. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, a carrier for moving said printing devices on the bed from the magazine to printing position, guides along each side of the bed provided with flanges to receive the ends of the printing devices thereunder, and spring-pressed friction-dogs arranged to bear against the ends of the printing devices adjacent to one guide and push the other ends of said printing devices against the other guide.

14. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, a carrier for moving said printing devices one at a time along the bed from the magazine to printing position and adapted to discharge the printing device after an impression has been taken, and a friction device engaging the printing device while it is being discharged to hold it in proper relation to the bed to prevent binding until it has been moved forward free of the bed.

15. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, a carrier for moving said printing

devices along the bed from the magazine to printing position, a spring constantly acting on said carrier to pull it forward, a pedal-lever for overcoming the tension of said spring, and a spring to pull the carrier rearward.

16. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, intermittent means for moving said printing devices along the bed from the magazine to printing position, inking devices located above the bed between the magazine and printing position, and means for operating said inking devices.

17. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, intermittent means for moving said printing devices along the bed from the magazine to printing position, inking devices located above the bed between the magazine and printing position, and means for operating said inking devices to ink each printing device twice.

18. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, intermittent means for moving said printing devices along the bed from the magazine to printing position, an inking-pad and a reinking-pad connected together, ink-supply pads, and means for operating said inking-pads to alternately engage the supply-pads and adjacent printing devices and ink each printing device twice.

19. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, intermittent means for moving said printing devices along the bed from the magazine to printing position, inking devices comprising a holder, inking-pads carried by said holder and adapted to engage adjacent printing devices, ink-supply pads, and means for swinging said inking-pads forward to engage the printing devices and back to the supply-pads.

20. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, a reciprocating carrier for moving said printing devices along the bed from the magazine to printing position, inking devices located above the bed between the magazine and printing position for inking each printing device twice, and means for operating said inking device to engage adjacent printing devices while the carrier is moving rearward and the printing devices are stationary on the bed.

21. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, a carrier for moving said printing devices along the bed from the magazine to printing position, a pair of crank-shafts located above the bed, inking-pads, a holder carrying said inking-pads and connected with the cranks of said shafts, ink-supply pads, a pedal-lever for simultaneously moving the carrier rearward and swinging the inking-

pads forward on the crank-shafts to engage the inking devices on the bed, and means for simultaneously moving the carrier forward and swinging the inking-pads back to engage the ink-supply pads.

22. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, intermittent means for moving said printing devices along the bed from the magazine to printing position, a plate above the bed to receive the material to be printed, a pad carried by said plate to engage the printing device in printing position, printing means, and means for withdrawing said pad from above the printing device as the printing means operate.

23. In an addressing-machine, the combination of a magazine for holding printing devices, a bed, means for moving said printing devices along the bed from the magazine to printing position, a plate above the bed for supporting the material to be printed, a pad carried by said plate to engage the printing device in printing position, printing means, means for moving said pad into and out of position above the printing device, and means for moving said pad into and out of engagement with said printing device.

24. In an addressing-machine, the combination of a magazine for holding printing devices, means for moving said printing devices from the magazine to printing position, a plate for supporting the material to be printed, a pad located beneath the plate to engage the printing device in printing position, a rocking arm provided with a heel adapted to throw the pad into engagement with the printing device, and a spring adapted to throw the pad quickly out of engagement with the printing device immediately after the heel of the rocking arm swings out of operative position.

25. In an addressing-machine, the combination of a magazine for holding printing devices, means for moving said printing devices from the magazine to printing position, a plate for supporting the material to be printed, a pad for engaging the printing device in printing position, means for tilting said plate to carry the pad into engagement with the printing device, means for tilting the plate to carry the pad out of engagement with the printing device, and means for moving said pad into and out of position above the printing device.

26. In an addressing-machine, the combination of a main plate to support the material to be printed, and a movable, dished, supplemental plate located in front of and forming a substantial continuation of the main plate.

27. In an addressing-machine, the combination of a main plate to support the material to be printed, and a pivoted supplemental plate located in front of and forming a substantial continuation of the main plate.

28. In an addressing-machine, the combina-

tion of a main plate to support the material to be printed, a pivoted supplemental plate located in front of and forming a substantial continuation of the main plate and adapted to be swung back away from the main plate, and a spring acting on said supplemental plate to hold it normally in operative position.

29. In an addressing-machine, the combination of means for supporting a printing device in printing position, an oscillating arm, a platen carried by said arm, a rock-shaft, a pedal-lever for actuating said rock-shaft, a crank on said rock-shaft connected with the pedal-lever, and another crank on said rock-shaft connected with the platen-arm.

30. In an addressing-machine, the combination of a platen, a pedal-lever for operating the platen, and a device for preventing return movement of the pedal-lever until it has completed its full forward or backward stroke.

31. In an addressing-machine, the combination of a platen, a pedal-lever for operating the platen, and a locking device carried by the pedal-lever and adapted to prevent return movement of said lever until it has completed its forward or backward stroke.

32. In an addressing-machine, the combination of a platen, a pedal-lever, and a device for preventing return movement of said pedal-lever until it has completed its forward or backward stroke comprising a fixed block having a curved face, and a spring-controlled locking-dog carried by the lever and provided with a face reversely inclined from its center to engage the curved face of the block.

33. In an addressing-machine, the combination of means for moving printing devices one at a time from a stack into printing position, a pivoted magazine for holding the stack of printing devices, and a movable front for the magazine.

34. In an addressing-machine, the combination of means for moving printing devices one at a time from a stack into printing position, a tiltable magazine for holding the stack of printing devices, and projections forming a bottom for the magazine when tilted to support the printing devices therein.

35. In an addressing-machine, a pivoted magazine adapted to hold the printing devices, and ribs at the back of said magazine to engage the top edges of the printing devices and providing a space to receive projections on said devices.

36. In an addressing-machine, a tiltable magazine for holding the printing devices, and a spring-controlled arm for holding said magazine steadily in upright or tilted position.

37. In an addressing-machine, a tiltable magazine for holding the printing devices, a guide on the magazine, and a spring-controlled arm provided with a shoulder to engage the guide and a socket to receive the guide.

38. In an addressing-machine, a tiltable

magazine for holding the printing devices, a movable front for said magazine, and guides at the bottom of the magazine to receive the tray when depositing the printing devices therein.

39. In an addressing-machine, the combination of a tray, means for supporting the tray in position to receive the printing devices from printing position, a depending packer pivoted on the frame of the machine above the tray-support and adapted to enter the tray when the latter is arranged in position to receive the printing devices, and means for swinging said packer to pack the printing devices in the tray at each printing operation.

40. In an addressing-machine, the combination of a tray-support, and means for holding said support and tray in tilted position beneath the machine to receive the printing devices as they are discharged from printing position.

41. In an addressing-machine, the combination of a tray, a follower in the tray, and a device on the machine for engaging said follower to push it forward in the tray in position to support the printing devices as they drop into the tray from printing position.

42. In an addressing-machine, the combination of a tray-support, a tray, a follower in the tray, and a pivoted device carried by said tray-support and adapted to engage the follower and push it forward in the tray as the latter is arranged on the support.

43. In an addressing-machine, the combination of a tray-support, a pivoted arm on said support adapted to engage the follower in the tray as the latter is arranged on the support, and a device on the machine for swinging said arm out of engagement with the follower when the support is tilted.

44. In an addressing-machine the combination of a magazine for holding printing devices, a bed, means for moving the printing devices one by one from the magazine to printing position on the bed, a tray, means for sup-

porting the tray beneath the bed, means for discharging the printing devices from printing position on the bed into the tray, and means for causing the printing devices to move from horizontal printing position to upright position when they are discharged into the tray.

45. In an addressing-machine, the combination of a magazine for holding a stack of independent printing devices, a carrier for moving the printing devices one at a time from the stack into printing position, printing means, and means for controlling the movement of the carrier to regulate the number of impressions to be taken from each printing device.

46. In an addressing-machine, the combination of a magazine for holding a stack of independent printing devices, a carrier for moving the printing devices one at a time from the stack into printing position, a stop on the carrier, printing means, and a device for engaging said stop to hold the carrier against its feeding movement.

47. In an addressing-machine, the combination of a magazine for holding a stack of independent printing devices, a carrier for moving the printing devices one at a time from the stack into printing position, printing means, a stop on the carrier, a pivoted arm adapted to engage said stop, and a governor for controlling the position of said arm.

48. In an addressing-machine, the combination of a magazine for holding a stack of independent printing devices, a carrier for moving the printing devices one at a time from the stack into printing position, printing means, a stop on the carrier, a governor, an arm controlled by said governor and adapted to engage the stop, and means for actuating the governor.

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Witnesses:

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