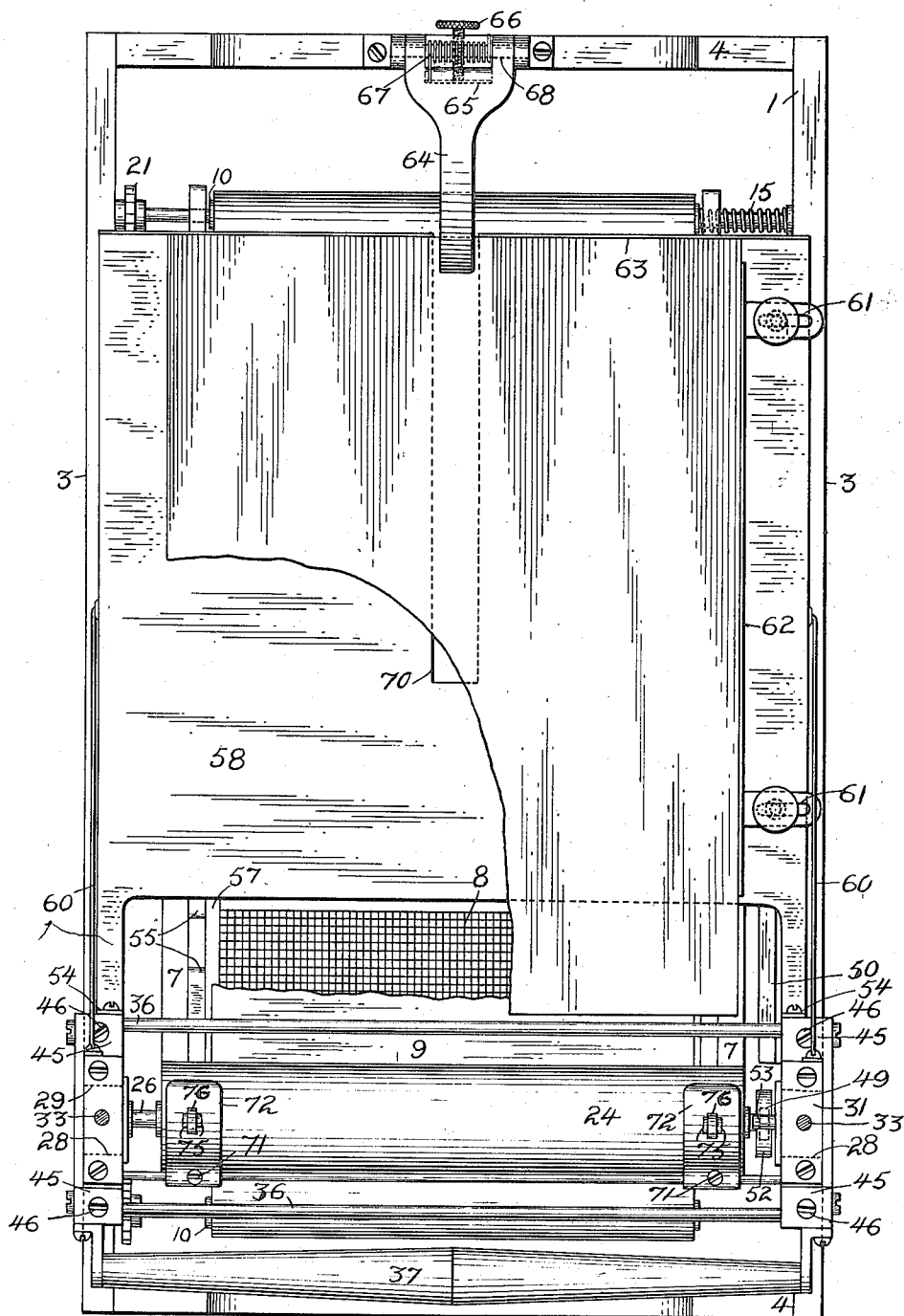


INDIVIDUAL LETTER PRINTING APPARATUS.

Patented Sept. 7, 1915.

4 SHEETS—SHEET 1.

1,152,588.



WITNESSES:

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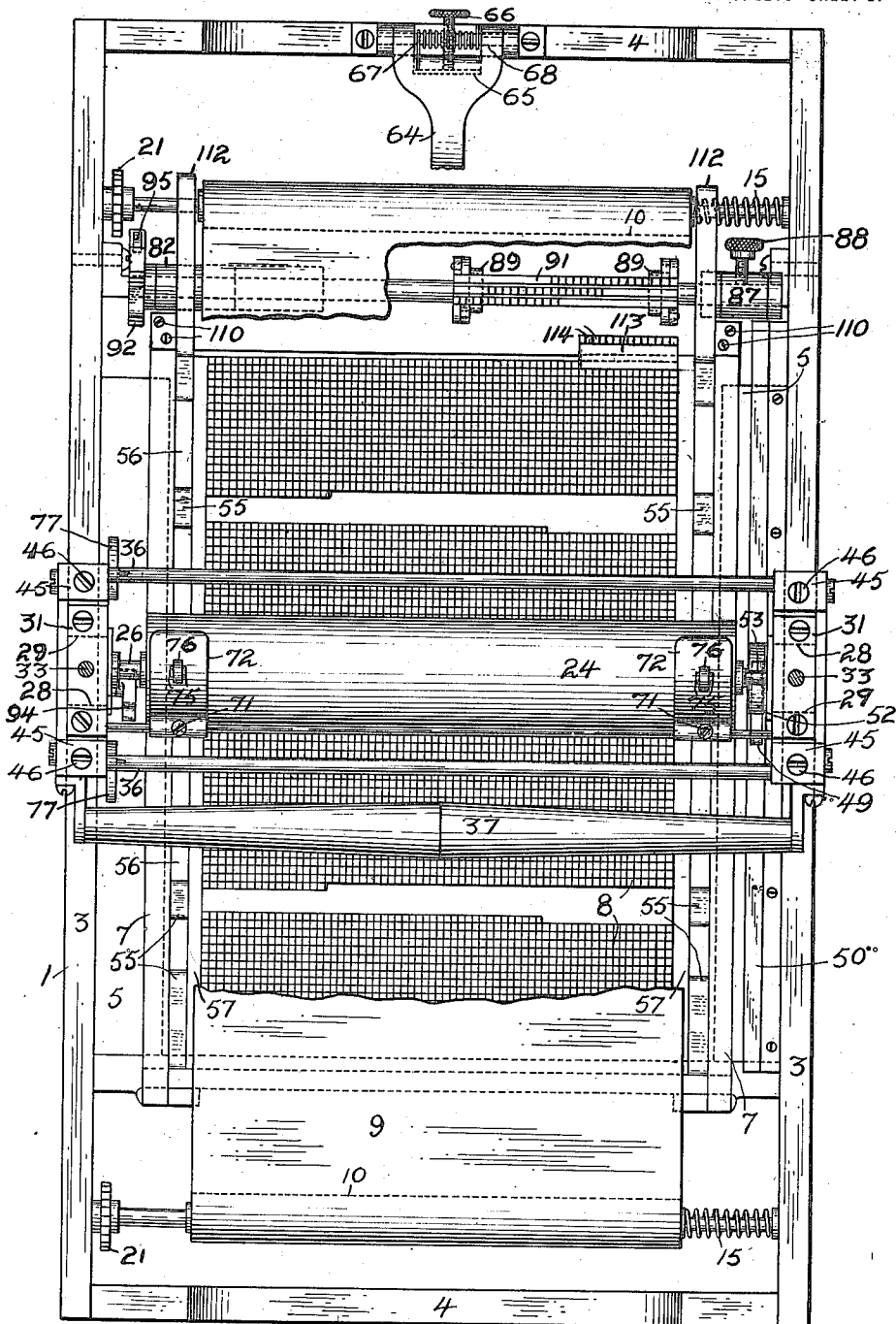
Fig. 1.

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 INDIVIDUAL LETTER PRINTING APPARATUS.
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4 SHEETS—SHEET 2.



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Fig. 2.

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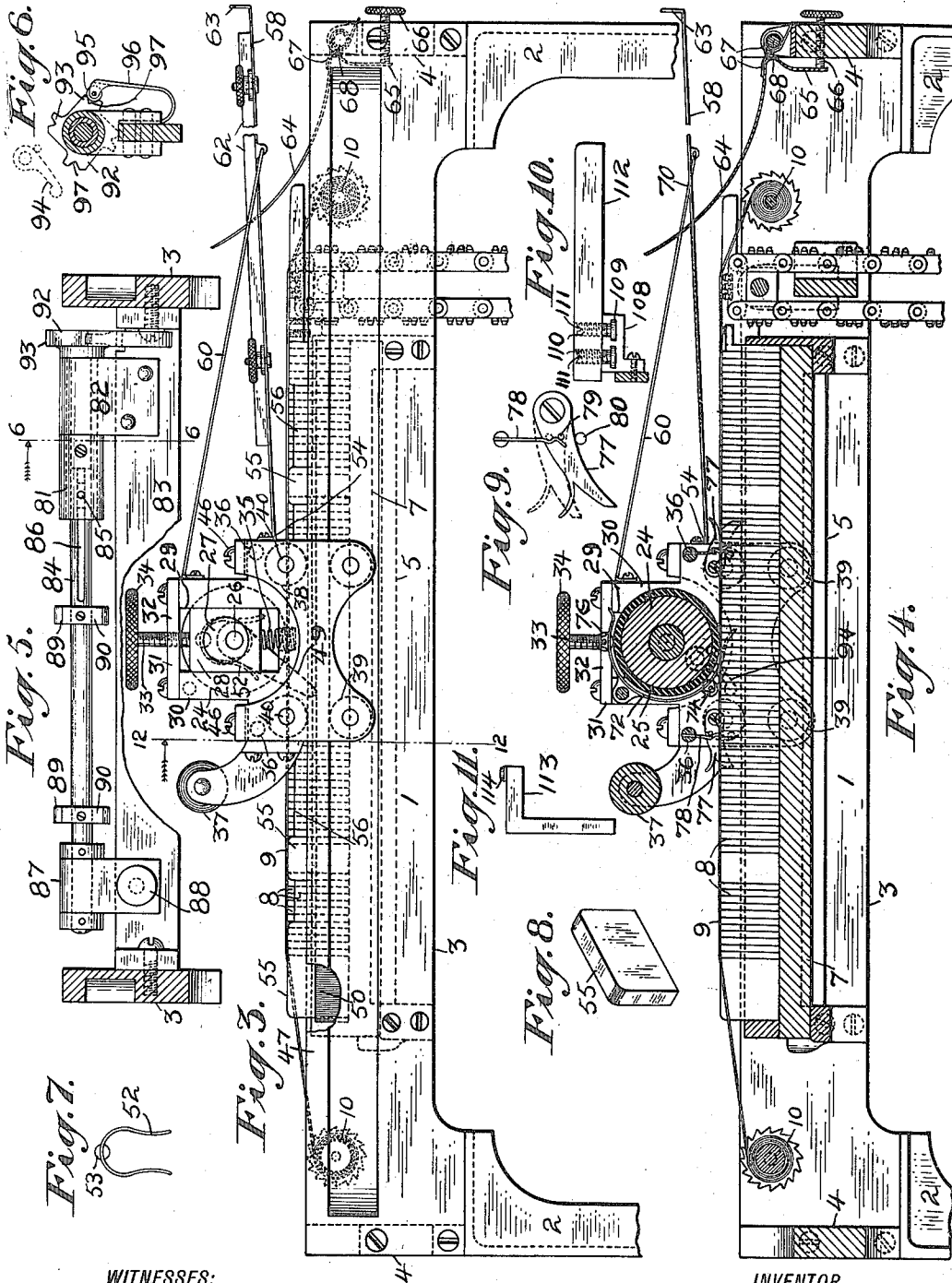
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

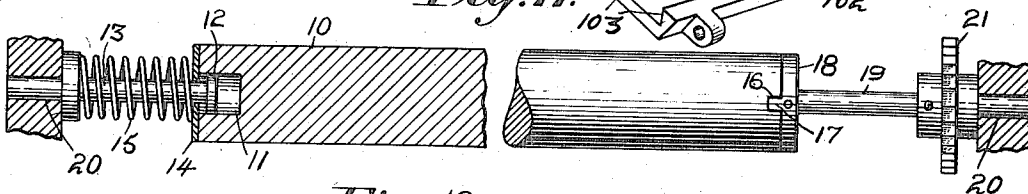
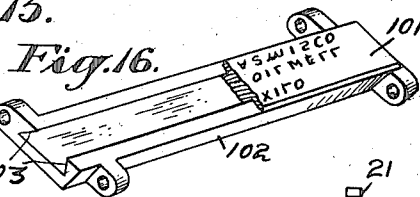
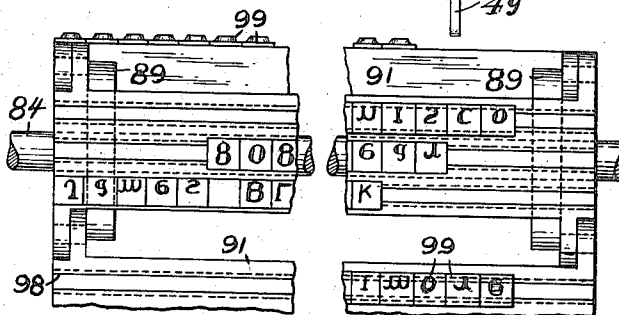
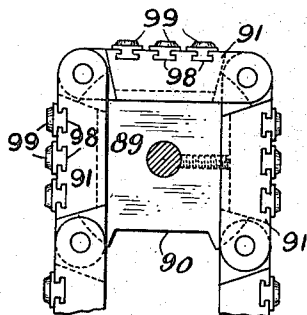
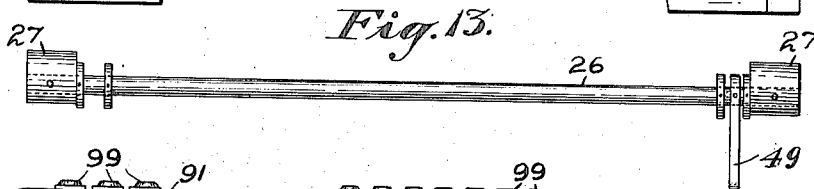
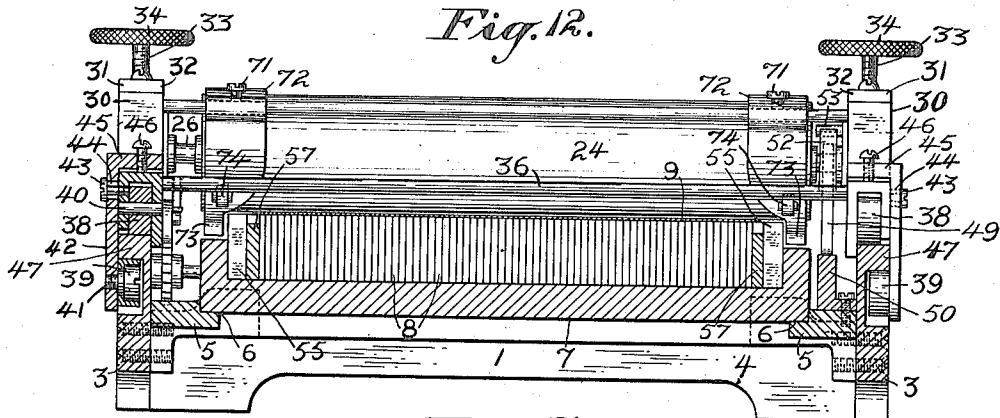
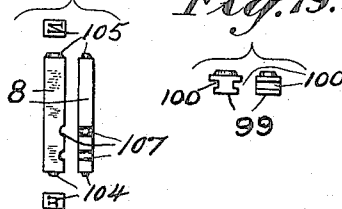


Fig. 18.

Fig. 19.

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UNITED STATES PATENT OFFICE.

WALTER WRIGHT, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO ADDRESSOGRAPH COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

INDIVIDUAL-LETTER-PRINTING APPARATUS.

1,152,588.

Specification of Letters Patent.

Patented Sept. 7, 1915.

Application filed May 11, 1908. Serial No. 432,001.

To all whom it may concern:

Be it known that I, WALTER WRIGHT, a citizen of Great Britain, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Individual-Letter-Printing Apparatus, of which the following is a specification.

This invention relates to a printing apparatus, especially adapted for the production of imitations of personal typewritten letters:

One object of the invention is to provide an apparatus of this character which is simple in construction and easy to operate.

Other objects will hereinafter appear.

In the accompanying drawing, Figure 1 is a plan view of the apparatus in the initial position before printing, one of the sheets of paper and also the inking ribbon being broken away; Fig. 2 is a similar view showing the carriage at the middle position of its path, the inking ribbon being broken away and the paper table removed; Fig. 3 is a side view showing the parts in the same position as in Fig. 2; Fig. 4 is a longitudinal section of the same; Fig. 5 is a sectional view showing in detail the shaft for advancing the name plates; Fig. 6 is a cross section on the line 6—6 of Fig. 5; Fig. 7 is a detail side view of a spring and its support; Fig. 8 is a detail perspective view of one of the pressure strips; Fig. 9 is an enlarged detail side view of one of the ribbon pawls on the carriage; Fig. 10 is a side view of the device for adjusting the pressure on the name plates; Fig. 11 is a detail side view of the salutation plate; Fig. 12 is a sectional view on the line 12—12 of Fig. 3; Fig. 13 is a detail side view of the printing roller shaft; Fig. 14 is an enlarged sectional view showing, in side elevation, the chain of name plate holders and their support; Fig. 15 is a broken front view of the same; Fig. 16 is a perspective view of a holder, having therein a modified form of name plate; Fig. 17 is a broken side view, partly in section, of one of the ribbon winding shafts; Fig. 18 contains a side view, an edge view, and end views of one of the type; Fig. 19 contains a side view, and an edge view of one of the type used for names and addresses.

Referring to the drawings, 1 indicates a frame, supported by legs 2, and comprising side plates 3 and the end plates 4 secured

thereto. Secured upon said side plates 3 are horizontal bracket bars 5 formed with seats 6 to receive and removably support the chase 7. In said chase are set, in the usual manner, the type 8 for printing and over said type extends a broad ribbon 9 of transfer or inking material, said ribbon being wound at its ends upon ribbon rollers 10. Each ribbon roller is preferably of wood or similar material, and is formed at one end with a central cylindrical recess 11 adapted to fit snugly over the flanged head 12 of a fixed shaft 13. When said recess is placed over said head, the corresponding end of the roller can be pressed against a disk 14 which is pressed outward by a coiled spring 15, around the shaft 13. Then by pushing said end of the roller against said disk, the roller can be moved in its axial direction sufficiently to allow a transverse groove 16 formed in the other end of the roller to fit over a transverse or diametral rib 17 formed upon the face of a disk 18 secured upon the end of a shaft 19. Said shaft 19 has its end mounted in a bearing 20 in the side plate of the machine, and has secured thereon a ratchet wheel 21. The necessary friction to resist the rotation of the ribbon roller except when rotated by some positive mechanism is provided by the pressure of the spring 15 against the disk 14. In the manner to be presently described, the roller at one end of the bed can be advanced intermittently at each operation of the machine, the roller at the other end being then advanced solely by the tension of the ribbon wound around the same, and its advance being resisted by the friction of the disk 14.

The printing is effected in the following manner: 24 indicates a pressure roller, having preferably a rubber surface 25, and loosely mounted upon a shaft 26 to revolve around the same. The ends of the shaft 26 are secured eccentrically in disks 27, mounted in boxes 28, which can move vertically in guideways 29 formed in the side plates 30 of a carriage 31. The parts of each side plate are connected above its guideway by a cross head 32, through which is screwed an adjusting screw 33 having a suitable milled head 34. The bottom of this screw bears upon the top of the box 28, while said box is pressed upward from the under side by a coiled spring 35. By adjusting the screws 33 the pressure of the roller can be

varied as desired. The two side plates are connected across the machine to form the carriage 31 by cross rods 36 and by a handle 37. In each end of the carriage are mounted four rollers, two upper rollers 38 and two lower rollers 39. The upper rollers 38 are mounted on studs 40 secured directly to the side plates of the carriage, one in front and one behind the center of the carriage, and the two lower rollers 39 are mounted upon studs 41 secured to plates 42 secured to the side plates of the carriage by screws 43 which pass through slots 44 in the outer plates (Fig. 12) and thus permit of vertical adjustment of said outer plates. Said plates 42 have horizontal parts 45 bent over the shoulders of said side plates 30, and screws 46 are screwed through said horizontal portions of the outer plates 42 and against the side plates and adjust the vertical position of the lower rollers relative to the upper rollers. Said rollers run on opposite sides of a rail 47 formed on the side of the main frame, the upper rollers upon the upper side thereof and the lower rollers against the lower side, and, since by means of the adjusting screws, said rollers can be arranged to press tightly against opposite sides of said rail, the carriage is thus confined to move invariably in a predetermined and definite path and by reason of the undercut nature of the trackway the impression roller is rigidly held to the type surface during the printing stroke, with such degree of pressure thereon as may be determined by the adjustment of the pressure screws 33 above described and by the pressure relief devices to be described below.

The printing roller is raised from or pressed against the type by means of the eccentrics in the following manner: Upon the roller shaft 26 is secured a depending arm 49, the lower end of which, in the printing or forward movement of the carriage, rides upon a track or cam 50, secured to the frame at one side of the machine, and extending the full length of the path of the carriage during the movement over which the printing is done. When said arm approaches the end of its movement, it passes over the end of the track, and then drops to a vertical position under the pressure of a U-shaped centering spring 52, secured in a split pin 53, which is secured to the carriage. The spring thus acts through the arm 49 to place the eccentric and shaft in a mid-position. On the return movement of the carriage the arm thus encounters the end of said cam or track, and is shifted reversely so that it again rides upon the track, but directed rearwardly. In being turned from its former position, the impression roller shaft 26 rotates on the axis of the eccentric disks 27 to which the shaft is secured, thereby raising said shaft 26 to a greater

height than on its printing movement, and raising the printing roller 24 so that it returns out of contact with the ribbon. In this manner the impression roller 24 is automatically brought into the proper printing position with respect to the ribbon-covered type form, just before it begins its printing stroke and is lifted during its return or non-printing stroke. During the printing stroke a sheet of paper is deposited on the ribbon and the passage of the roller thereover makes the impression of the type characters through the ribbon upon the paper, as will be understood.

I have found that where printing is done, as in the present case, by means of a typewriter ribbon and metal type, the pressure of the resilient-faced impression roller must be distributed with almost exact uniformity over the full working length of such roller, or in such manner that each type surface or line of types experiences substantially the same degree of pressure, and also that as the roller encounters a type character or surface after having passed over an open or blank space, it must exert no greater compression upon the ribbon at the point of initial contact with such character than elsewhere. Otherwise accurate imitation of typewriting will not be gained, because on the one hand short lines, such as the close of a paragraph, or the name and address, etc., will receive a deeper impression from the soft inking ribbon than the full lines, and, on the other hand, the edges of the characters first encountered by the pressure roller will be similarly printed deeper and darker than the rest of such characters, thus in either case destroying the verisimilitude to actual typewriting. This control of the impression pressure is accomplished by the use of pressure relief devices suitably applied to resist the pressure of the roller (as determined by the screws 33) either continuously throughout the path of the roller, or locally, where the extent or area of type surface beneath the roller is less than that which the roller encounters elsewhere. The said devices comprise the strips 55, which are preferably narrow blocks of wood with the corners rounded, and placed inside the chase at the sides thereof and outside the edges of the ribbon, being of sufficient height to relieve the pressure on the type surface to such extent as may be desired, and which will prevent the full pressure of the roller from being imparted to a part only of a line of type. As shown in the drawings, the pressure roll is of uniform diameter throughout its length and rests at each end upon the relief strips. These relief strips can, if desired, be made each in a single piece extending the length of the side of the chase, but it is preferable to make them in short individual pieces. Between these pressure relief strips are in-

serted spacing blocks 56 which are lower than the strips 55, and do not come in contact with the pressure roller, being inserted merely for the purpose of keeping the pressure relief strips in place. It is preferable to separate the relief and spacing strips from the edges of the type matter by dividing strips 57 on to which the edges of the ribbon extend, thus insuring that the ribbon covers the type, while not reaching as far as the pressure strips. The strips 55 serve only the body portion of the type form which is set up and contained in the chase 7. Other pressure-controlling devices are employed in conjunction with the other portions of the form, to wit, the salutation plate and the name and address plates, as later described.

The sheets of paper are fed one at a time by hand on to a table 58 sloping downward toward the carriage and secured thereto at the bottom as shown at 54, and by oblique ties 60 from the top. The table is provided with a marginal rail or paper guide 62 adjustably secured to it by set screw and slot connections 61 of obvious construction. The table is also formed with a front or transverse wall 63 which forms a feed stop for the upper edge of the paper, when it is first placed in position. By means of said end and side walls, the sheets of paper can in succession be accurately placed always in the same position relative to the machine.

The paper table 58 is cut away adjacent the impression roller to allow the end of the paper to be nipped between the inking ribbon and the roller. This action takes place when, in the movement of the carriage and paper table, the opposite or upper end of the paper abuts against a disappearing finger-stop 64, pivoted on the front end wall of the machine and having a depending lip 65 against which abuts a screw 66 screwed through said end wall. A coiled spring 67 around the pivot pin 68 depresses said finger 64 so that the depending lip 65 thereof abuts against said screw 66. By screwing said screw in or out, the normal or initial position of the finger 64 may be raised or lowered as may be desired. Said paper table is formed with a central longitudinal slot 70, open at the end, into which slot extends the finger-stop 64, so that, as the paper table advances, the finger-stop 64 remains stationary, said finger holds the paper stationary, while the paper table is advancing with the carriage until the end of the paper is gripped between the pressure roller and the type matter or pressure strips. Said pressure then holds the paper stationary, and said finger-stop 64 is no longer needed to prevent the paper moving rearwardly with the movement of the paper table or carriage. As the carriage advances, said finger-stop 64 arrives at the end of the

longitudinal slot 70 and abuts against the paper table at that point. It is moved out of the way by the end of the slot engaging the finger-stop 64, and, in the forward movement of the carriage, raising said stop on its pivot against the action of the spring 67. The finger 64 is thus moved through a considerable angle, so that, when the carriage arrives at the extreme limit of its advance, the finger 64 points in a forward direction and out of the way of the carriage. As the roller advances over the end of the paper, that end is turned immediately upwardly and around the roller so as to be removed from the ribbon before the carriage makes its return stroke or even finishes the printing of the remainder of the sheet. Such immediate removal of the paper is desirable in that it prevents possibility of smearing the freshly inked printed matter thereon or smudging the paper by further contact with the ribbon.

A mechanism suitable for producing the removal as above indicated may consist as follows: Adjustably secured to the upper rod 36 by means of set screws 71 are two paper fingers 72, the lower ends of which are extended forward beneath the pressure roller. These lower ends are made narrow, as shown at 73, and said narrow portions extend over the sides of the chase outside the pressure relief and spacing strips. When the carriage is moved forward from its initial position, the pressure roller first rolls upon relief strips, which are inserted at this point because no printing takes place at the extreme bottom of the paper. The paper being thus held down between the pressure roller and the relief strips, the fingers 72 pass below the outside edges of the paper, so that by the fingers 72 going beneath the paper the lower edge of the paper passes upward between said fingers 72 and the pressure roller, and then between said pressure roller and two small lower rollers 74 which are journaled on said paper fingers 72. The fingers are also adjusted by means of said set screws 71 so that said small rollers press with sufficient force against the pressure roller to insure a rolling motion of said small rollers. Similarly, as the paper arrives at the top of the pressure roller, it passes under two upper small rollers 76 upon upper guides 75 (Figs. 1, 2). Thereby as the pressure roller advances the paper is positively advanced around the pressure roller with the movement of the same. By this movement the paper is carried upward, and the bottom edge of the paper, which is now the one that is advancing upon the pressure roller, moves forward at the top of the pressure roller as the latter roller advances and is precipitated from the machine through the forward movement of the carriage and the revolving of the pressure roller, through

the opening cut out of the paper table at the lower portion thereof (Fig. 1), which at this time is uncovered; or the printed sheet may be removed by hand.

5 On each excursion of the impression roller the ink ribbon receives a feeding motion which takes place at the end of the printing or return stroke, as the case may be, but in any event after the roller has left its pressing contact with the paper. This motion is
10 imparted by either of the two pawls 77, pivoted on the carriage and adapted to engage the ratchet wheel 21 above referred to. The springs 78 coacting with the pins 79
15 serve to maintain their respective pawls active or inactive according as one or the other is used for feeding the ribbon and the direction of feed is determined by the selection of one of the pawls as will be obvious. The
20 pawls are provided with stop pins 80.

The type included in the chase 7 is intended to print the body of the letter, and is referred to herein as the body printing portion of the type form. The name and
25 address printing portion of the type form is separate from the chase, although mounted on the same frame and under the ink ribbon, and is arranged to be automatically changed by the movement of the carriage or
30 roller, and at an appropriate point in its return stroke, so that on each reciprocation a new name or name and address will be brought into the path of the roller and subjected to the appropriate pressure thereby
35 against the paper to print the latter with the same shade or depth of impression as the type in the body portion, thus preserving the similarity to typewritten letters. For this purpose there is provided a sleeve
40 81 rotating in a bearing 82 fixedly secured upon a transverse bar 83. In this sleeve 81 is one end of a shaft 84, movable longitudinally in the sleeve, but rotatable therewith by means of a pin 85 in the sleeve engaging
45 a slot 86 in the shaft. Said shaft has its bearing at the other end in a support 87 adjustably secured on the transverse bar 83 by a set screw 88. By this arrangement, the shaft 84 can be moved transversely of the
50 machine to any desired position, within suitable limits, but in any position it still rotates with the sleeve. Upon said shaft 84 are secured sprocket wheels 89, which are recessed, as shown at 90, to receive name
55 and address type holders 91, which are pivotally connected to each other at their sides, near their ends, to form a chain, said chain being supported upon said sprocket wheels and being advanced by the rotation of said
60 wheels and the shaft 84, by the following construction. Upon the sleeve 81 is secured a ratchet wheel 92, having four teeth 93 adapted to be engaged by a pawl 94 carried upon the carriage, so that when the carriage
65 is advanced, said pawl 94 rises above, and

passes freely over, the uppermost tooth, and has no effect in turning the shaft, but, upon the return movement of the carriage, said pawl comes in contact with said tooth and engages the same to turn the shaft 84
70 through one-fourth of a revolution, thereby bringing the next name and address plate or type into proper position for printing. Detent means for the sleeve and shaft 84 is provided in the form of a roller 95 (Fig. 6)
75 carried by a spring 96, and which engages one of four notches 97 in the ratchet wheel and, thereby centers the shaft 84 and maintains the same firmly in the proper position for printing.

Each holder is formed with three parallel undercut grooves 98 for type 99, the body of each of which type, as shown in Fig. 19, is formed with grooves 100 in its sides to fit
85 the sides of the grooves of the holder. Said latter grooves are spaced apart at the proper distance for the type therein to print single typewriter spacing so that the distance between the two outside grooves is suitable for printing double spacing.
90

While the above is the preferred construction, I may, in place thereof, as shown in Fig. 16, provide a single plate 101 having the name and addresses electro-typed or
95 otherwise formed thereon, the type holder 102 being in that case formed with a single undercut groove 103, so that the name plate may be slid thereinto.

In Fig. 18 are shown a number of views of an improved form of type for use in this
100 invention. One type face 104 for printing the small letter, is formed at one end of the type body, and the type face 105, for printing the corresponding capital letter, is formed at the other end of the same type
105 body. Each type body has therefore formed, on its opposite ends, the type for printing letters or characters which are printed by striking the same key on single case or shift key typewriting machines, such
110 as the Remington. For instance, a type body which carries at one end a type for printing the numeral 4 carries at its other end the type for printing the "\$" mark. In one side of the type body, corresponding
115 to the bottom side of the type face, are formed notches 107, thus facilitating the setting of the type right way up, and these notches are formed in said side nearer to the end of the type body used for printing the
120 small letter, than to the other end, thus facilitating the setting of the type right end up.

At the sides of the machine opposite to, or in line with, the type for printing the names and addresses, as hereinbefore more fully described, are arranged pressure strips for
125 regulating the pressure on said type, so that the impression taken therefrom may correspond in shade and appearance with that of the main body of the letter. For this pur- 130

pose there are provided supporting blocks 108 secured to the chase, and in which are held the heads 109 of upwardly extending screws 110, having screw-driver slots 111 at their upper ends, by which they can be turned. Said screws are screwed into pressure strips 112, and by turning said screws said pressure strips may be raised or lowered, as desired, to afford the necessary relief of the pressure upon the type. These pressure strips also insure that the pressure roller will rotate by contact therewith sufficiently to eject the paper by the revolution of the small rollers 74 and 76, by friction with the pressure roller. It is desirable to be able to change the mode of salutation from "Dear sir" to "Gentlemen" or vice versa, as may be desired. For this purpose I have provided a plate 113 which is fitted into the end of the chase and is removable therefrom. Said plate 113 at the upper portion is deflected outward or forward, and provided at its forward edge with type faced matter 114 for printing the salutation. When it is desired to change the salutation, one of these L-shaped plates is removed and the other substituted. It will be observed that this construction permits of the plate for printing the salutation being located at the proper position intermediate between the name and address and the beginning of the body of the letter, while at the same time it does not interfere with the free rotation of the chain of name and address plate holders. This plate is, in reality, inserted in the same line as the first line of type for printing the body of the letter. For, since every letter begins with a paragraph, there is always a space of about ten typewriter spaces which is not occupied by type, thereby providing vacant space in which this plate can be inserted.

The type are arranged in the main body of the letter in single typewriting spacing, as are also the name and address at the beginning of the letter, while the salutation is spaced from each of these a double typewriter spacing.

The mode of operating the machine will, in general, be apparent from the foregoing description. When the body printing portion of the type form has been set up in the chase, the latter is placed on the supports 5, which include suitable positioning stops to maintain the top line of type at an appropriate line-space distance from name-printing portion. The salutation-printing portion is inserted, and by reason of its L-shaped form and of the fact that it is mounted in the chase, in alinement with the type, supports its type surface 114 also at an appropriate line-space distance from the body portion. The chain of holders 91 is then applied to the sprockets 89 so that the first holder will rest in the seat provided by the

two opposite grooves 90 in the two sprockets. As thus seated, it will be noted that the holder is held snugly and against movement in any direction in the plane of the holder. The position of the name-printing surface of the holder may then be adjusted by loosening the screw 88, as above described, and shifting the whole shaft, and with it the seat for the holder, so as to bring it into alinement with the margin of the body-printing portion, such alining movement of the name plate seat being independent of the means for rotating the seat, by virtue of the feathered joint 84—85 above described, and requiring no change in that mechanism. The ribbon is then applied and the pressure controlling means (112) is set to determine the desired printing pressure on the name-printing portion of the form, as above explained. On each return stroke of the carriage the pawl 94 shifts the rotary support of the name-holders 91, bringing the next succeeding link and its type surface into the printing plane. Such link or name-printing portion, it will be noted, moves upwardly from below, that is to say, transversely to the path of the impression roller, slightly lifting the ink ribbon as it turns into position. The spring 96 comes into action as the link approaches parallelism and operates to overcome the momentum of the parts to prevent the link from overrunning its desired position, as well as to move it to such position in case it has failed to reach it. By actuating the name-changing mechanism on the return stroke of the carriage, it will be evident that any disturbance to the overlying ribbon that may occur will take place when the roller is raised, and that no paper is then in contact with the ribbon. The L-shape of the salutation piece provides clearance beneath the salutation proper in which the name holders may turn and pass downwardly from the printing position.

I claim:—

1. In apparatus for printing imitation typewritten matter, a ribbon covered type form, a resilient-faced impression roller co-acting therewith and an undercut trackway which confines the roller to the printing plane during the printing stroke, in combination with pressure relief means acting upon the resilient surface of the roller and tending to displace the latter from the printing plane, whereby the impression pressure is maintained uniform throughout the area of the type surface.

2. In apparatus for printing imitation typewritten matter, a ribbon-covered type form, a resilient-faced roller coacting therewith, a trackway which confines the roller to the type surface during the printing stroke and strips on both sides of the type surface acting against the resilient surface of the roller.

3. In apparatus for printing imitation typewritten matter, a ribbon-covered type form, a resilient-faced roller coacting therewith, a trackway which confines the roller to the type surface and localized pressure relief means adapted to support the margin of the paper and acting through the paper against the surface of said roller.
4. In apparatus for printing imitation typewritten matter, a ribbon-covered type form, a resilient-faced impression roller coacting therewith, and pressure withstanding means at the sides of the type form adapted to be covered by the paper sheet and acting through such sheet upon the resilient face of the roller.
5. In apparatus for printing imitation typewritten matter, a ribbon-covered type form, an impression roller adapted to roll thereon and pressure-controlling means serving to establish uniformity of impression between the short lines of the form and the full length lines thereof, the said means being disposed along the sides of the form to engage the opposite end portions of the roller, and the engaging contact of the said means with the roller being resilient or yielding in its nature.
6. In apparatus for printing imitation typewritten matter, a ribbon-covered type form, an impression roller, a carriage for the latter, and a trackway confining the carriage to movement in a predetermined plane, in combination with means for adjusting the pressure of the roller against the form and strips along the sides of the form coöperating therewith to resist such pressure, the engaging contact of the strips with the said roller being yielding and adapted to accommodate the said judgment.
7. In apparatus for printing imitation typewritten matter, a ribbon-covered type form, a resilient-faced impression roller adapted to roll relatively thereon, and throw-off means for such roller adapted to bring the same into the printing plane during the fore part of the printing stroke, in combination with pressure relief devices beneath the resilient face of the roller and acting against such face to relieve the impression pressure at the point of initial contact thereof with the type form.
8. In apparatus for printing imitation typewritten matter, a ribbon-covered type form, a resilient-faced impression roller coacting therewith and pressure relief devices engaging the roller at its opposite ends in substantially the plane of the type surface and adapted also to support the margins of the sheet to be printed.
9. In apparatus for printing imitation typewritten matter, a chase, a ribbon-covered type form therein, a resilient-faced impression roller relatively movable thereover, and pressure relief means incorporated in the chase and coördinated with the type form to preserve substantially uniform impression pressure throughout the area of the type surface.
10. In a printing machine, the combination with a chase, of pressure relief strips supported by the chase, outside of the type on both sides of the type form, and of substantially the same height as the face of the type, a pressure roller of such width that it extends into contact with the pressure strips on both sides of the machine, an inking ribbon overlying the type and located between said relief strips, and means for feeding said ribbon, a carriage for the pressure roller and tracks for the carriage independent of the pressure relief strips.
11. In a printing machine, the combination with a movable chase, of pressure relief strips, spaced at intervals on both sides of the form of type, and of substantially the same height as the face of the type, spacing blocks between the ends of adjacent relief strips, and a pressure roller of such width that it extends into contact with the pressure strips on both sides of the machine, substantially as described.
12. In a printing machine, the combination with a chase, of pressure relief strips outside of the type, on both sides of the type form, and of substantially the same height as the face of the type, dividing strips between the pressure relief strips and the type, and a pressure roller of such width that it extends into contact with the pressure strips on both sides of the machine, substantially as described.
13. In a printing machine, the combination of a frame, a stationary type bed, a carriage movable thereover, a pressure roller carried by said carriage, a paper table carried by said carriage, and a stop for the front or advancing edge of the paper, said stop being movable with the paper table during the latter part only of its movement, substantially as described.
14. In a printing machine, the combination of a frame, a stationary type bed, a carriage movable thereover, a pressure roller carried by said carriage, a paper table carried by said carriage, and a stop arranged to hold the paper stationary while the table moves thereunder until the rear edge of the paper has been pressed beneath the pressure roller, substantially as described.
15. In a printing machine, the combination of a frame, having a stationary type bed, a carriage movable thereover, a pressure roller carried by said carriage, pressure strips arranged at the sides of the type bed, and a stop for the paper arranged to arrest the paper in such a position that the opposite end of the paper from the stop is held at its side edges between said pressure strips and roller, substantially as described.

16. In a printing machine, the combination of a frame, a stationary type bed, a carriage movable thereover, a pressure roller carried by said carriage, a paper table carried by said carriage, and a stop arranged to hold the paper stationary while the table moves thereunder until the rear edge of the paper has been pressed beneath the pressure roller, and means whereby said stop is movable with the table after the latter has moved through a predetermined distance, and means for returning the stop upon the return of the table, substantially as described.

17. In a printing machine, the combination of a frame, a stationary type bed, a carriage movable thereover, a pressure roller carried by said carriage, a paper table carried by said carriage, and a stop arranged to hold the paper stationary while the table moves thereunder until the rear edge of the paper has been pressed beneath the pressure roller, and means whereby said stop is movable with the table after the latter has moved through a predetermined distance, and means for returning the stop upon the return of the table, and means for varying said distance, substantially as described.

18. In a printing machine, the combination of a frame, a stationary type bed, a carriage movable thereover, a pressure roller carried by said carriage, a paper table carried by said carriage, and a stop arranged to hold the paper stationary while the table moves thereunder until the rear edge of the paper has been pressed beneath the pressure roller, and means whereby said stop is movable with the table after the latter has moved through a predetermined distance, and means for returning the stop upon the return of the table, means for adjusting said stop to vary the margin at the bottom of the sheet of paper before the printing begins, substantially as described.

19. In a letter-printing machine, the combination of a pressure roll or impression cylinder, a type-bed, and delivery fingers for the paper, said delivery fingers extending around the pressure roll and projecting below the level of the type to engage the side edges of the sheet and guide it up around the pressure roller.

20. In a letter-printing machine, the combination of a pressure roll or impression cylinder, a type-bed, and delivery fingers for the paper, said delivery fingers extending around the pressure roll and projecting below the level of the type to engage the side edges of the sheet and guide it up around the pressure roller; all of said delivery fingers having rolls to run upon said pressure roller.

21. In apparatus for printing imitation typewritten letters, a type form comprising a portion to print the body of the letter and

a changeable portion to print the addressee's name, an ink ribbon covering such form, an impression roller relatively movable over the form and ribbon, means for guiding sheets of paper to the printing plane and in a predetermined marginal position with reference to the side of the body portion of the form, and means for laterally shifting the printing position of one of such form portions relatively to the other to aline the name with the body portion of the letter.

22. In apparatus for printing letters, a frame, a stationary type form including a fixed body portion and a changeable name-printing portion, such portions being separately mounted in the frame and the name-printing portion being movable transversely in such frame whereby it is brought into marginal alinement with the body portion, in combination with an ink ribbon, a carriage bearing a resilient-faced impression roller which is adapted to press a paper against the ribbon and the type form, and means for automatically changing the name-printing portion.

23. In apparatus for printing letters, a type form comprising a body portion and a changeable name-printing portion, a supporting seat for the latter portion and means for laterally shifting the operative position of said seat relatively to the body portion, in combination with an ink ribbon over both portions, an impression roller coacting with said ribbon and both the form portions and means for automatically introducing different name-printing form portions into the said supporting seat.

24. In apparatus for printing imitation typewritten letters, a type form including a body portion and a changeable name-printing portion, a seat for the latter portion adapted for movement to carry the said portion into printing position, and means for laterally alining the printing position of said movable seat, in combination with an ink ribbon and impression roller both co-operating with both portions of the type form, and means for automatically operating the seat to change the name-printing portions.

25. In apparatus for printing imitation typewritten letters, a type form including a body-printing portion and a name-printing portion, mechanism for automatically removing the latter portion and substituting another in place thereof, means independent of such mechanism whereby the printing position of such name-printing portions is adjustable relatively to the body-printing portion of the form, an ink ribbon over both portions of the type form and an impression roller movable over the ribbon and said form.

26. In apparatus for printing imitation typewritten letters, a stationary type form

comprising a body portion and a name-printing portion, a support for the latter portion, automatic mechanism for moving such support to bring successive name-printing portions into printing relation and independent means for shifting the support with respect to the body portion, in combination with an ink ribbon and a reciprocating impression roller coacting therewith to print the letter from both portions of the form.

27. In apparatus for printing imitation typewritten letters, a type-form comprising a body portion and having interchangeable name-printing portions and a movable support for the latter portions formed with a seat adapted to interlock with such portion against movement in the plane of such portion and means for adjusting such movable support with reference to the margin of said body portion, in combination with an ink ribbon overlying both parts of the type form and an impression roller coacting with the latter and said ribbon to print the letter.

28. In apparatus for printing imitation typewritten letters, a ribbon-covered type-form, a chase supporting the main body of the form, a separately supported changeable portion of the form, an ink ribbon covering the whole type form, a resilient-faced impression roller adapted to roll relatively over the form and ribbon and pressure relief means acting on such roller during its passage from the body portion to the changeable portion of the form.

29. In apparatus for printing imitation typewritten letters, a ribbon-covered type-form including portions adapted to print a salutation and a name, an ink ribbon covering the whole form, a resilient-faced impression roller adapted to roll relatively over such form and the ribbon, means for varying the impression pressure upon said salutation and name-printing portions relatively to the form as a whole and means for automatically changing the name-printing portion.

30. In apparatus for printing imitation typewritten letters, a type-form including a body portion and a changeable name-printing portion, a carriage rigidly confined to move in a predetermined path, a resilient-faced impression roller held by the carriage in pressing contact with the type-form during the printing stroke, and means for equalizing the impression pressure on all the type characters in the type-form including those in the said changeable portion.

31. In apparatus for printing imitation typewritten letters, a ribbon-covered type-form including a changeable portion to print different names or salutations, a resilient-faced impression roller relatively movable over such form, and means for relatively adjusting the impression pressure upon such

changeable portion with respect to the rest of the form whereby the impression pressure may be rendered uniform throughout.

32. In apparatus for printing imitation typewritten letters, the combination with a letter-body printing portion, a stationary bed therefor and a name printing portion, automatic means for removing the latter portion and successively substituting others in place thereof, a salutation printing portion supported on said bed between the other portions and manually removable from the printing plane, of an ink ribbon covering all three portions and a reciprocating impression roller coacting with said portions through the ribbon to print the letter therefrom in a single operation.

33. In apparatus for printing imitation typewritten letters, a letter body printing portion, an automatically changeable name printing portion and a salutation printing portion having an L-shaped support mounted near the body printing portion and its type surface portion extended toward the automatically changeable portion, in combination with an ink ribbon overlying all three portions and an impression roller coacting therewith through said ribbon.

34. In apparatus for printing letters, a body-printing portion and a chase therefor, a changeable name-printing portion and a support for the latter, a salutation-printing portion removably supported by the chase and extending toward the name-printing portion, and an ink ribbon and roller coacting with all three portions.

35. In apparatus for printing letters, a body-printing portion and a chase therefor, an automatically changeable name-printing portion, and a salutation-printing portion, such last mentioned portion comprising a removable L-shaped piece removably supported between the body and name-printing portions, an ink ribbon covering all three portions and an impression roller mounted to travel over the several portions of the type form to print the letter.

36. In apparatus for making imitation typewritten letters, a ribbon-covered type-form comprising a body printing portion, and a changeable name-printing portion, a roller-supporting carriage reciprocating over both portions, and having a printing and a return stroke, in combination with means for automatically relieving the printing pressure on the roller and automatic means for changing the name-printing portion after the action of said pressure-relieving means and during the return stroke of said carriage.

37. In a printing machine of the character described, the combination of a frame, a pressure roller and carriage therefor, a shaft for the roller eccentrically mounted in the carriage, an arm connected with the shaft, a

track on which the arm rides, and a spring device arranged to normally center the arm at the end of each movement whereby upon the return movement of the carriage the said arm is moved into a different position and the vibration of said arm turns the roller shaft to raise the roller on the return movement.

38. In apparatus for printing imitation typewritten matter, a type form comprising a portion to print the body of the matter and a changeable portion to print an addressee's name or other matter, an ink ribbon covering such form, an impression roller coacting therewith over the form and ribbon, and means for guiding sheets of paper into the printing plane in a predetermined marginal position with reference to the body portion of the form, in combination with means whereby the printing position of one of such form portions may be laterally shifted relatively to the other and means for varying the impression pressure upon the changeable portion with respect to the body portion, whereby both said portions will be printed with the same depth of impression.

39. In an apparatus for printing imitation typewritten matter, a ribbon-covered type form, supports for the paper extending along the margins thereof and a reciprocating roller carriage having a paper feed

table moving therewith and upon which the sheet of paper moves to the printing plane, in combination with an impression roller in said carriage adapted to nip the margins of the sheet against said supports extending along the margin of the ribbon-covered form, and means for discharging the printed sheet in a path intersecting its path of movement to the printing plane.

40. In apparatus for printing imitation typewritten matter, a type form comprising a portion to print the body of the matter and a changeable portion to print an addressee's name or other matter, an ink ribbon, an impression roller coacting therewith to take an impression from both said form portions in a single operation, rails disposed adjacent said changeable portion engaging the impression roller and determining its pressure upon said changeable portion, means for automatically removing said changeable portion and substituting another in its place, and automatic means for advancing the ribbon between impressions.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER WRIGHT.

Witnesses:

FRANCIS M. WRIGHT,
D. B. RICHARDS.