

J. F. MAHLSTEDT.
PRINTING PRESS.

APPLICATION FILED JULY 15, 1910.

Patented Feb. 6, 1912.

8 SHEETS—SHEET 1.

1,016,756.

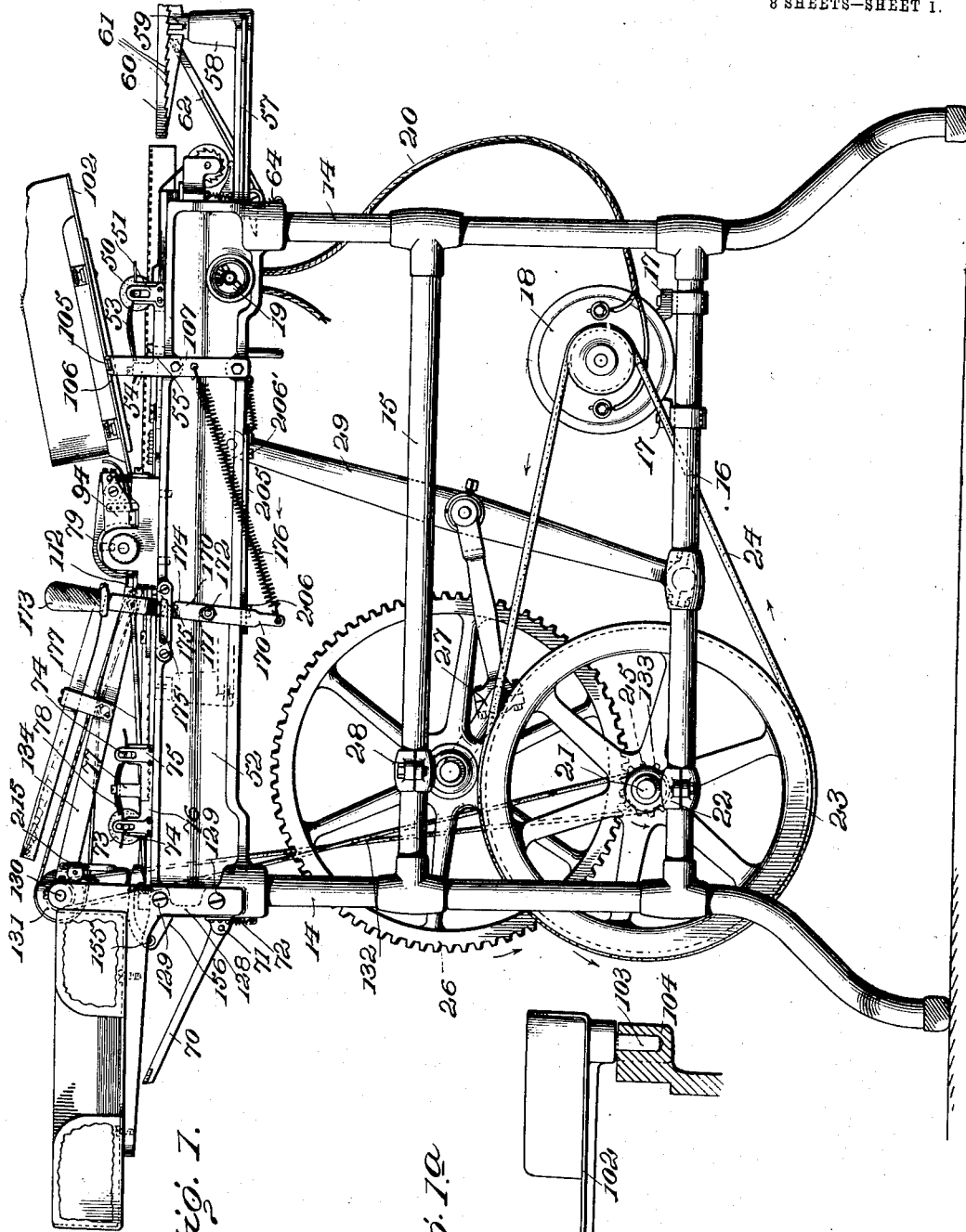


Fig. 1.

Fig. 2.

Witnesses

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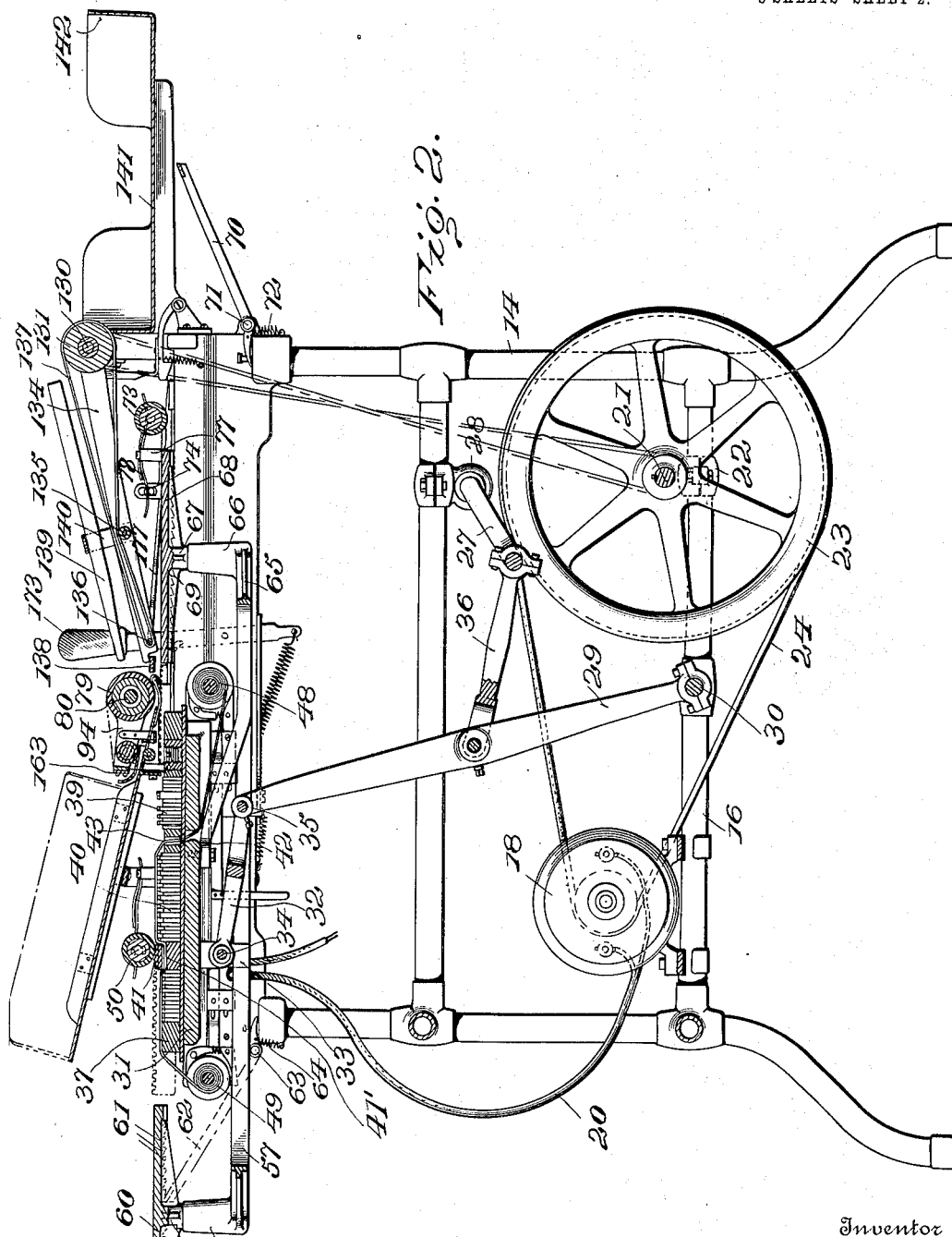
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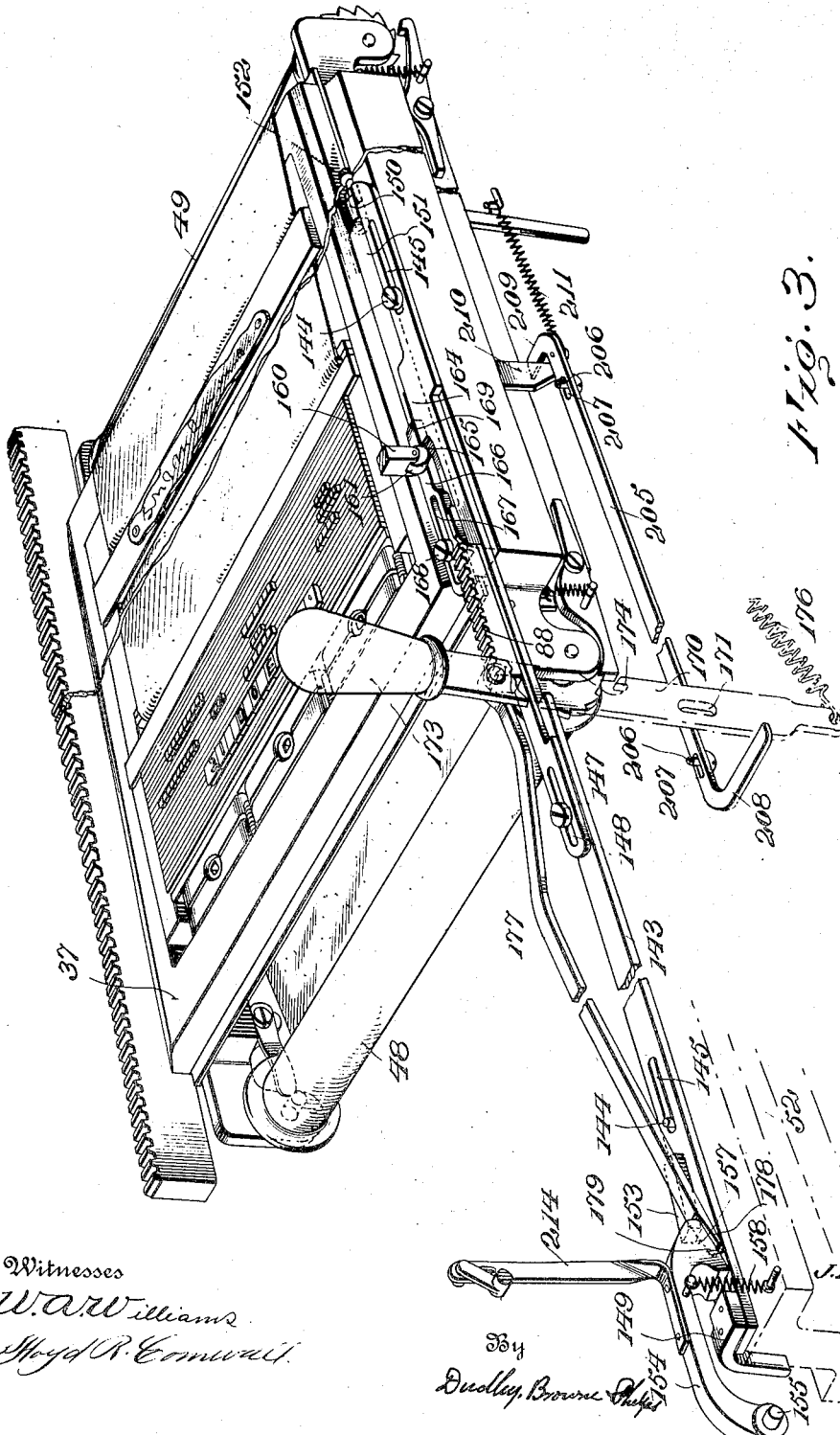
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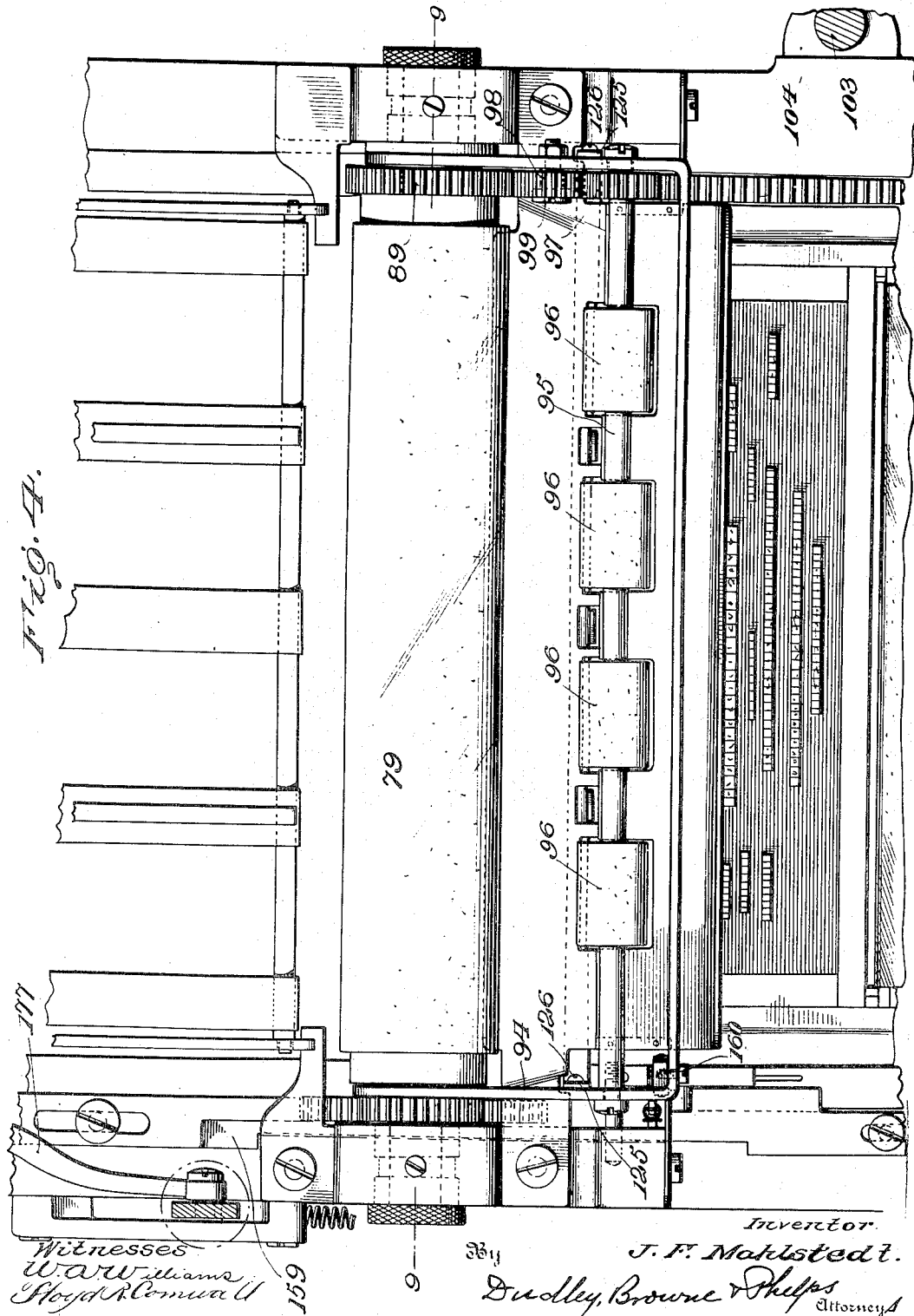
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Fig. 5.

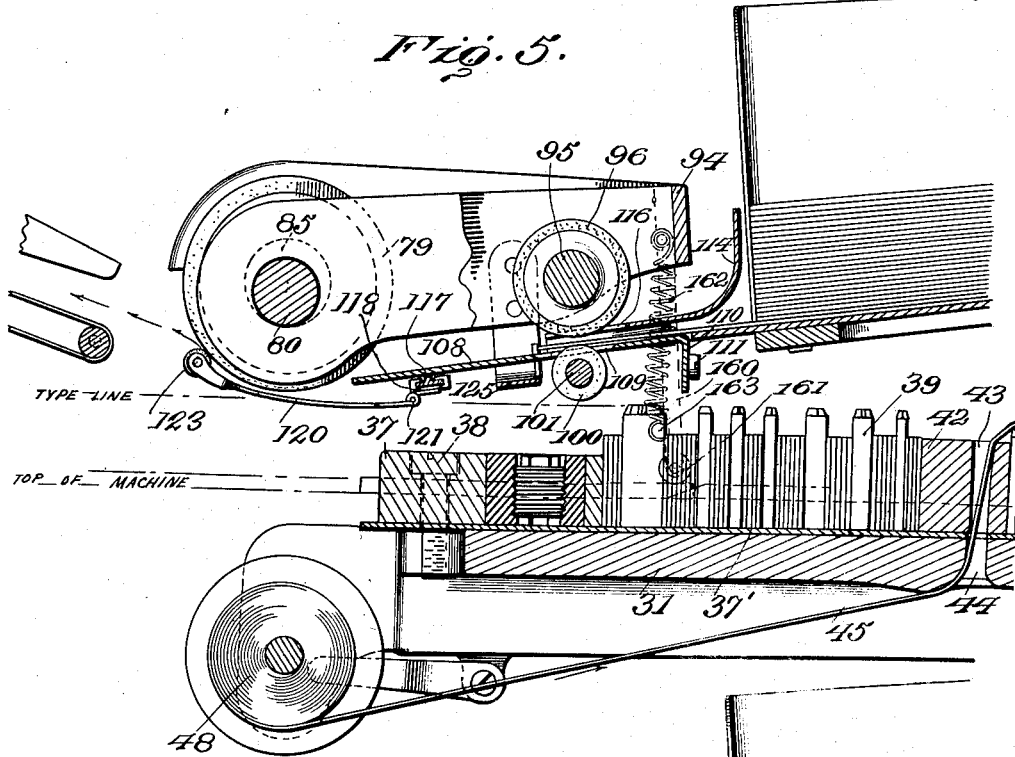
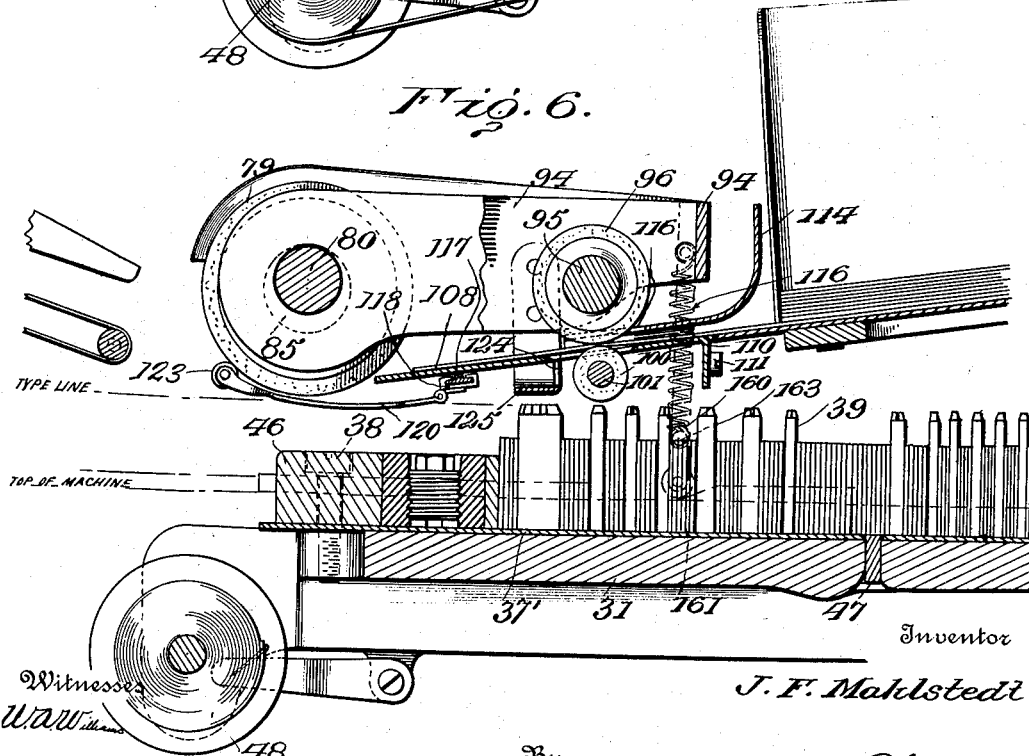


Fig. 6.



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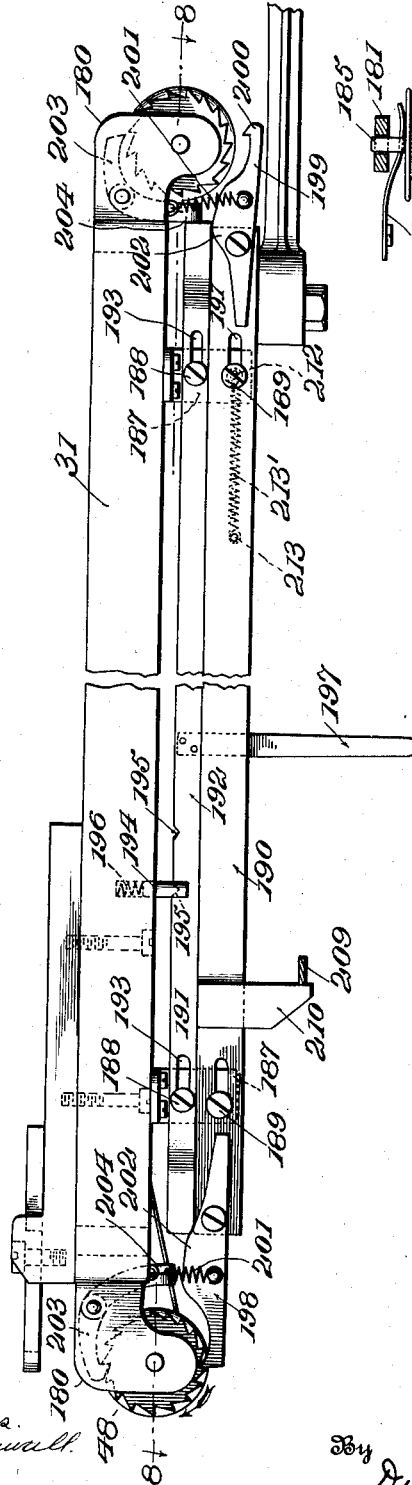
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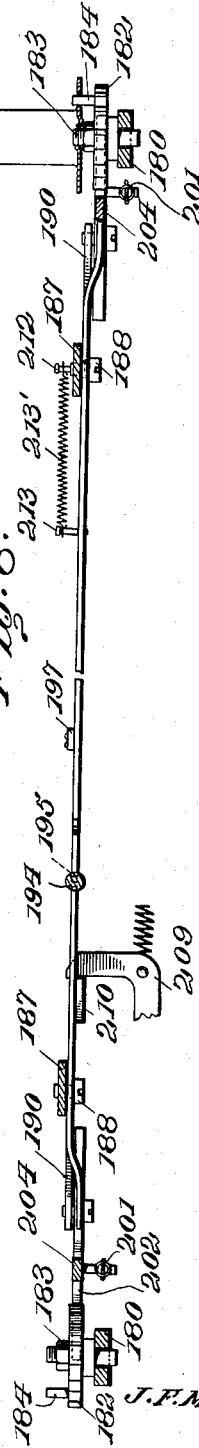
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Fig. 7.



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Fig. 8.



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Fig. 9.

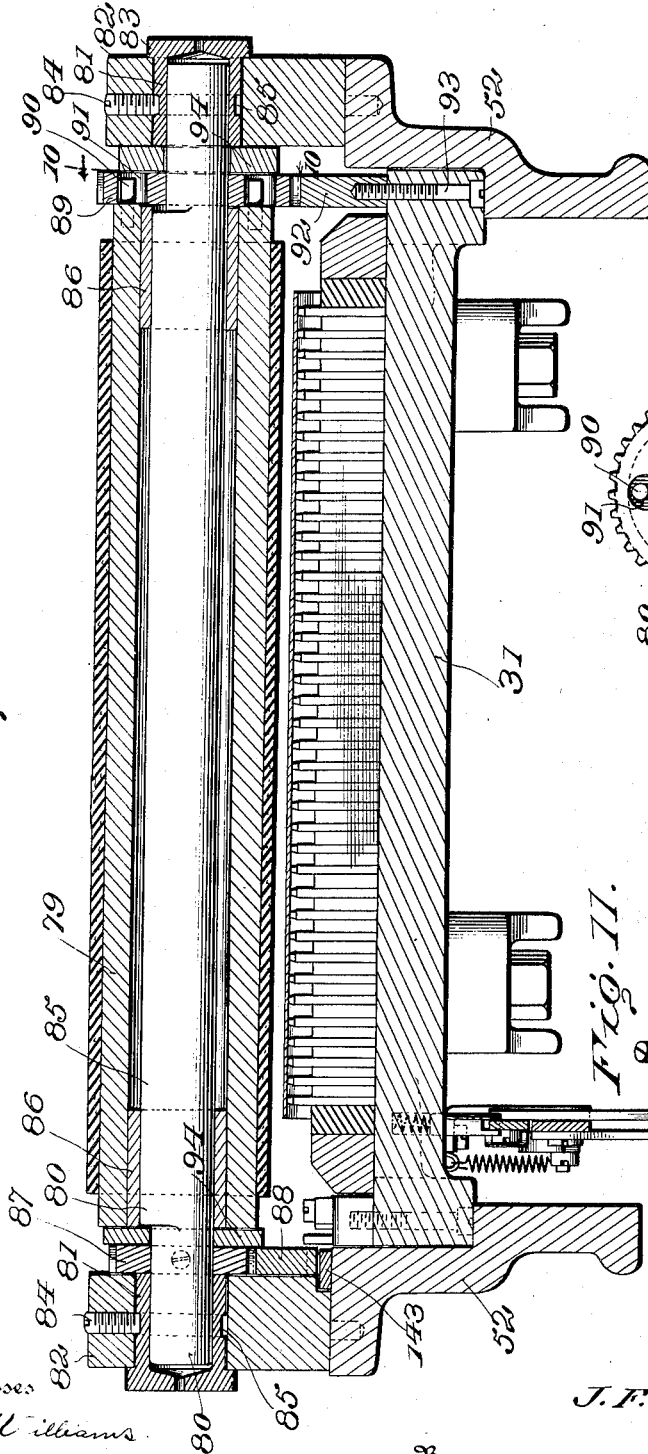


Fig. 10.

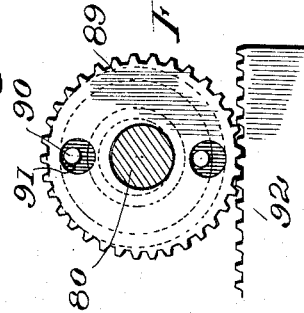
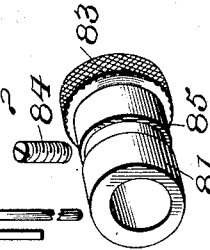


Fig. 11.



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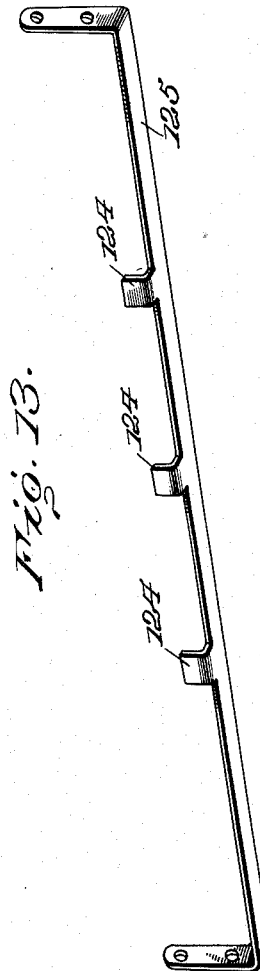
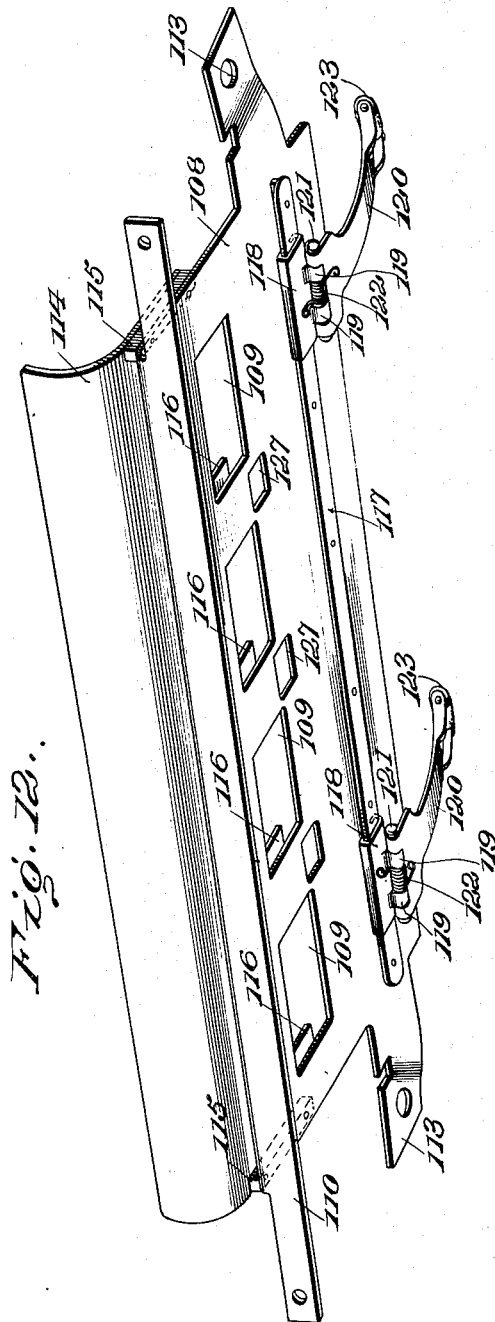
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8 SHEETS—SHEET 8.



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UNITED STATES PATENT OFFICE.

JOHN F. MAHLSTEDT, OF LOS ANGELES, CALIFORNIA.

PRINTING-PRESS.

1,016,756.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed July 15, 1910. Serial No. 572,141.

To all whom it may concern:

Be it known that I, JOHN F. MAHLSTEDT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

My invention relates to certain new and useful improvements in printing machines, and the particular object of my invention is to improve the machine shown in my prior application No. 428,196, filed April 20, 1908. The machine shown in said application is for the purpose of printing letters, circulars and the like, in which the heading of the letter may be printed with ordinary printing ink of any desired color, the body of the letter with an inked ribbon to imitate type-writing, and the signature with ink which will give the effect of writing.

The object of my present invention is to improve and simplify the machine disclosed in the prior application referred to as to make the same more efficient, certain and more rapid in operation, less likely to get out of order and composed of fewer parts.

A further object of the invention is to construct the machine so that it will have a wider range of usefulness than the machine disclosed in my prior application.

With these and other objects in view my invention consists in certain constructions, combinations and arrangements of parts the preferred form of which will be first described in connection with the accompanying drawings and then the invention particularly pointed out in the appended claims.

Referring to the drawings wherein the same part is designated by the same reference numeral wherever it occurs Figure 1 is a side elevation of a machine constructed in accordance with my invention; Fig. 1^a is a detail view, partly in section, of the preferred means for mounting the feed table; Fig. 2 is a central, longitudinal section looking from the opposite side of the machine from that illustrated in Fig. 1; Fig. 3 is a detail perspective view of the bed and adjacent parts with parts removed and shown in section to more clearly illustrate the construction; Fig. 4 is a top plan view of the feed and impression mechanism and parts adjacent

thereto; Fig. 5 is a detail sectional view of the machine and impression mechanism and the head end of the chase and bed, showing the parts in the position they occupy at the beginning of the printing stroke; Fig. 6 is a similar view showing the parts in the position they assume after leaving the position shown in Fig. 5; with however a form which requires no ink ribbon in position on the bed; Fig. 7 is a side elevation of the bed showing the ribbon operating mechanism; Fig. 8 is a detail perspective view partly in section of said ribbon operating mechanism; Fig. 9 is a section taken on line 9, 9 of Fig. 4; Fig. 10 is a detail view of one end of the impression roll; Fig. 11 is a detail perspective view of the bushing forming a bearing for one end of the shaft of the impression roll, and also showing a locking screw therefor; Fig. 12 is a detail perspective view of a portion of the paper feeding mechanism removed from the machine; Fig. 13 is a detail perspective view of the front stops.

The supporting frame is preferably rectangular and is preferably formed of pipe, said frame being composed of the four vertical pipes 14 which extend down and form the legs of the frame, the pipes 14 being connected together by the parallel horizontal pipes 15, 16. Extending across between the lower set of horizontal pipes 16 are a pair of cross bars 17 on which may be mounted an electric motor 18 for driving the machine.

19 is a switch controlling the motor, which is connected to the motor by means of the wires 20.

21 is a drive shaft mounted in bearings 22 on the pair of pipes 16, said shaft being provided with a pulley 23 to which the pulley on the motor shaft is connected by means of a belt 24. The shaft 21 is also provided with a gear 25 meshing with a gear 26 mounted on a crank shaft 27 carried by bearings 28 on the pair of pipes 15.

29 designates the operating lever pivoted at one end on the shaft 30 supported between the pipes 16. The upper end of the lever is connected to the traveling form carrying bed 31 by means of a link 32 connected with the projection 33 on the bed by means of a pin 34, the free end of the link being connected to the lever 29 by a pin 35. The lever 29 is connected to the crank shaft 7

by means of a link 36. From this construction it will be seen that at each rotation of the crank shaft 27 the bed 31 will be given a complete reciprocation.

- 5 37 designates a chase adapted to be secured to the bed by any suitable means, as by the screws 38 passing through openings formed in the ends of the chase and into openings in the top of the bed. Within the chase
10 I show the type 39 which, in the particular construction shown, is adapted to print a letter head, the type 40 which forms the body of the letter and the electrotpe 41 which carries the signature.
15 42 designates a block longitudinally slotted at 43 and secured at its ends to the sides of the chase 37. The bed 31 is provided with a slot 44 which registers with the slot 43, and through both of which the inking ribbon 45 is adapted to pass as will be hereinafter more fully described.

- If desired the chase carrying the sliding block 42 may be removed, and a chase which is not provided with such block may be substituted therefor where it is not desired to
25 print a letter head, which construction is shown in Fig. 6. In this case it will be noted that the chase which is indicated by the numeral 46 is of ordinary rectangular
30 form, and the opening 44 in the bed is filled by a bar 47 which completely closes the same. 37' is a sheet metal plate which preferably extends beneath the entire form in order to support the form in the chase.
35 48, 49 designate ribbon spools which are removably mounted at opposite ends of the bed and between which the ribbon 45 extends. As will be clearly seen from the drawings this ribbon extends from one spool
40 48 beneath the bed 31, up through the registering slots 43, 44 in the block 42, and the bed 31, then over the type 40 which print the body of the letter, through the slot 41' in an electrotpe 41 and over the end of the
45 chase and on to the spool 49. The body of the letter is consequently the only part which prints through the ribbon.

- 50 50 designates an inking roller adapted to be mounted in a bearing 51 adjustably mounted on the sides of the side bars 52, which are mounted upon the upper ends of the uprights 14 of the frame.

- 53 are leaf springs extending out from a post 54 mounted at one side of the bearing 51, said springs being adapted to rest upon the shaft of the inking roller.

- The adjustment of the bearings 51 is effected by means of set screws 55 which extend through elongated slots in the base of
60 the bearings 51.

- 57 is a bracket extending from the end of the bed 31 and is provided at its outer end with a head 58 centrally bored to provide a bearing for a centrally projecting
65 stud 59 of the rotatable inking plate 60. The

inking plate is provided on its under surface with the ratchet teeth 61 with which the pawl 62, pivoted at 63 to the frame, is adapted to engage. The pawl is held in contact with the notches or ratchet teeth 61
70 by means of the spring 64 secured at one end to the frame and at the other end to the pawl. From this construction it will be seen that upon the reciprocation of the bed and consequent reciprocation of the inking
75 plate the same will be given a partial rotation by the engagement of the end of the pawl with the ratchet teeth on the under surface of the plate and will also supply ink to the ink roller 50.

65 is a bracket extending out from the opposite end of the bed 31 from that which carries the bracket 57. Said bracket is provided with a head 66 centrally bored to provide a bearing for the centrally projecting
80 stud 67 of a second inking plate 68. This inking plate is similar to the inking plate 60 and is similarly provided with ratchet teeth 69 on its under surface, with which a pawl
85 70, pivoted at 71 on the frame, is adapted to engage. The pawl is held in the path of the ratchet teeth 69 by means of the coil spring 72 connected at one end to the frame, and at the other end to the pawl, whereby the inking plate is given a partial rotation at
90 each reciprocation of the bed.

The inking roller 73, which receives ink from the plate 68, is mounted in one or the other of a pair of bearings 74, 75, carried by bars 76 secured to the sides 52. Extending
100 upward from each of the bars 76 is a pillar 77 to which are attached leaf springs 78 extending over the bearings 74 and 75, whereby the ink roller will be yieldingly held in either one of these bearings. The purpose
105 of having two sets of bearings for the ink roller 73 is to enable the entire form to be inked by this roller, and the roller 50, if it should be desired to print the entire form with inked type and not print any portion
110 of the same through a ribbon.

79 designates the impression roller, loosely mounted upon a shaft 80, the ends of which extend into bearing sleeves 81 which are bored slightly eccentric, said sleeves extending
115 through the bearing blocks 82 mounted on the side bars 52 of the frame. The sleeves 81 are provided on their outer ends, outside of the blocks 82, with a head 83 which, preferably, and as shown, is milled, whereby the
120 sleeve upon being rotated, because of its eccentricity, will raise and lower the ends of the shaft 80. In order to hold the sleeves in adjusted position I provide means for securing them, said means being shown as comprising a screw 84 passing through the top
125 of each block 82 and bearing in a groove 85 in the sleeve. The shaft 80 for the length of the roller 79 is eccentric, as shown at 85, and 86 are bearing rings inserted in the ends of 130

the impression roller, by which the roll is supported on the shaft at its end portions only.

87 is a gear fast on the shaft 80 with which a rack 88 meshes, whereby the movement of the rack by mechanism to be hereinafter described will turn the shaft 80 and raise and lower the impression roller and throw it into and out of contact with the form. At the end of the impression roller, opposite that at which the gear 87 is located, I provide a gear 89 connected to the end of the impression roller 79, preferably, and as shown, by means of pins 90 extending from the end of the roller into suitable openings 91 in the side of the gear, said openings being larger than the pins, as best shown in Fig. 10, whereby the roller can be given its vertical movement into and out of contact with the form without moving the gear. The gear 89 is constantly in mesh with the rack 92, secured by means of bolts 93 to the bed 31, whereby the impression roller will be positively rotated by the reciprocation of the bed.

94 is a U-shaped frame, supported at its ends by the shaft 80, the shaft passing loosely through openings in the end portions of the frame. One end of said frame is located between the gear 87 and the end of the impression roller, while the other end of the frame is located between the gear 89 and the adjacent bearing block 82, with the body portion of the frame extending across in front of the impression roller 79.

95 is a shaft extending across the U-shaped frame and journaled at its ends in the sides thereof. Fast on the shaft 95 are a series of rollers 96 which, together, form the upper feed roller of a paper feeding mechanism.

97 is a gear fast on the end of the shaft 95 adjacent the gear 89, and 98 is an intermediate gear journaled on a pin 99 extending from the side of the U-shaped frame 94 and connecting the gear 97 with the gear 89, whereby the feed rollers 96 will rotate in unison with the impression roller, the relative size of the gears 97, 98 and 89 being such as to drive the feed rollers 96 at the same peripheral speed as the impression roller 79.

100 is a lower feed roller, which is composed of sections corresponding to the sections 96 of the upper feed roller, and mounted upon a shaft 101 journaled in bearings in the blocks 82. The feed roller sections 100 are adapted to cooperate with the driven feed roller sections 96 just described, and with which the driven rollers may be moved into and out of contact.

102 is a feed table, provided on one side with a downwardly extending pin 103, which extends into a socket or boss 104 extending up from the side frame 52. In the side of the feed table opposite the pin 103 I pro-

vide a projection 105, adapted to spring into and out of a shallow notch 106, formed in the end of an upright 107 secured on the opposite side 52 of the frame. From this construction it will be seen that the feed table may be swung into the position shown in Figs. 1 and 2, when sheets may be fed between the feed rolls or swung to one side on the pivot 103 when it is desired to obtain access to the form.

Located between the pair of feed rollers and extending from the edge of the feed table to the impression roller and tangential to the lower portion of the impression roller is what I term a paper feed rest 108 provided with a series of openings 109, through which the lower feed rolls project, the feed rest being secured to the blocks 82. Preferably, and as shown, the end of the feed rest adjacent the edge of the feed table 102, is turned down as shown at 110 and screws 111 secure the end of said down-turned portion to the face of the blocks 82. At the front end the feed rest is secured to the blocks by means of the screws 111 passing through peripheral ears 113 on the rest.

114 is a paper guide secured to the upper face of the paper feed rest and spaced therefrom by means of the spacing blocks 115, the guide having its end up-turned, as shown, to facilitate the insertion of the sheets to be printed between the guide and paper feed rest. The edge of the guide 114 is formed with a series of projecting fingers 116, between which the sections 96 of the upper feed roll are adapted to project.

Mounted on the lower surface of the feed rest 108 is a bar 117 T-shaped in cross section, upon which are slidably mounted a pair of blocks 118, carrying projecting ears 119.

120 are a pair of guide fingers hingedly connected to the ears 119 by means of the pintle 121, and 122 is a spring surrounding the pintle 121 and tending to raise the free ends of the fingers 120. The free ends of the fingers 120 each carry a roll 123 adapted to run in contact with the surface of the impression roller to guide the paper in its passage beneath the impression roller and to prevent the paper from sticking to the form. By mounting these rolls on blocks which are slidably mounted upon the bar 117 the rolls can be adjusted for various widths of paper and forms.

The front stops for the sheets are formed by projections 124 of a bail 125 having its ends perforated and through which pass screws 126 by means of which the bail is secured to the sides of the U-shaped frame 94, in such a position that the front stops 124 can project through openings 127 in the feed rest 108 in front of the lower feed roller 100, consequently as the U-shaped frame 94 is raised and lowered to raise and lower the upper feed roller 96 into and out of en-

gagement with the lower feed roller 100 the front stops will be moved into and out of the path of the paper, the front stops being in the path of the sheets when the feed rollers are out of contact and lowered out of the path of the sheets when the rollers are in contact.

128 are a pair of uprights secured upon the rear end of the side frame 52 by means of bolts 129, and in the upper ends of the uprights is journaled a shaft 130, provided with a roller 131 driven by means of a belt 132 extending from a pulley 133 on the shaft 21, whereby the roller 131 is continuously driven. Loosely mounted on the shaft 130 between the ends of the roller 131 and the uprights 128 are a pair of bars 134 provided with cross rods 135, 136.

137 are endless tapes extending from the roller 131 around the bar 136 upon which the sheets are delivered after passing beneath the impression roller 79. The lower ends of the bars 134 are supported in position to enable the belts to receive the sheets by having their ends engage a cross bar 138 extending between the blocks 82.

139, 139 are a series of bars supported above the tapes 137 by means of the supports 140 extending up from the cross rods 135, these bars operating to prevent the sheet from curling up as it is carried along by the tapes 137. Suitably supported behind the roller 131 is a receiving table 141 provided with sides 142 to receive the sheets as they are delivered by the tapes passing over the roller 131.

In the operation of my machine it is necessary, as in my prior application referred to, that means be provided for lifting the impression roller from the form during the return movement of the bed since the gear of the impression roller is always in mesh with the rack on the form bed, and it is also necessary during such return movement that the feed rollers be separated and the front stop raised, so that a sheet can be fed into position to be engaged by the feed rollers. It is further necessary that when the bed starts on its printing stroke that the impression roller be down in printing position with the feed rollers biting the sheet to be printed and the front stops lowered out of the path of the sheet. In order to accomplish these results I provide means for performing these operations, the preferred form of which will now be described.

Running the length of the machine and supported on top of one of the side frames 52 is a bar 143 adapted for longitudinal movement upon the side frame 52, being held in position and guided in its movement by means of screws 144 passing through the slots 145 in the bar and into the top of the frame 52. Secured to the upper face of the bar is the rack 88 adapted to mesh with the

gear 87 on the impression roller shaft 80. This rack is preferably adjustably connected to the bar 143 by means of the screw 147 passing through elongated slots 148 in the end of the rack, whereby the rack can be adjusted longitudinally of the bar 143 to adjust the pressure of the impression roller upon the form. At the front of the bar 143 I provide a head 149, and at the rear end a similar head 150, the head 149 being in the path of the front portion of the bed, whereas the head 150 is in the path of a laterally extending projection 151 on the rear portion of the bed. The distance between the heads 149 and 150 is such that just prior to the bed reaching the rear limit of its stroke it will strike the head 150 and push the bar rearward, and just prior to the bed reaching the back end of its stroke it will strike the head 149 and force the bar forward. This operation will, through the rack 88 and the gear 87 with which said rack meshes, partially rotate the eccentric shaft 80 to raise and lower the impression roller 79 into and out of contact with the form, the amount of pressure between the impression roller and the form being regulated by the adjustment of the rack 88 upon the bar. In order to adjust the throw of the bar 143 I have provided the head 150 with a set screw 152 extending therethrough, whereby by adjusting the amount said screw extends through the head the amount of movement of the bar may be varied.

153 is a block secured to the upper surface of the bar 143 adjacent the head 149, and 154 is a latch pivoted at 155 on a lug 156 extending out from the frame. This latch is provided with a depending head portion 157 adapted to drop into the path of the lug 153.

158 is a coil spring secured at one end to the frame 52 and at the other end to the body of the latch 154 to force the latch down in the path of the block 153.

159 is a cam faced nose carried on the front end of the bed and in position to pass under the side of the head 157 to raise the same before the end of the bed strikes the shoulder 149, whereby the bar 143 is free to move forward upon the end of the bed contacting with the head 149. The block 153 is of such a length that when the bar 143 has been moved forward the lower face of the latch will rest upon the top of the block and the latch will be prevented from dropping in front of the block until the bar has again been moved to its rearward position by the head 150 being struck by the projecting shoulder 151.

In order to raise the U-shaped frame 94 and consequently raise the upper feed roller 96 out of contact with the lower feed roller 100 and the front stops 124, into the path of the sheet, during the return movement

of the bed, I mount upon the side of the frame 94 a depending arm 160 provided at its lower end with an antifriction roller 161, the roller being of such a width that it will

5 extend over a portion of the bar 143 and the adjacent edge of the side of the bed 31.
162 is a spring connected at one end with the frame 94 and secured at the other end to a lug 163 extending out from one of the
10 bearing blocks 82. This spring operates to draw the frame 94 down to bring the feed rollers 96 into contact with the rollers 100 and move the front stops 124 out of the path of the sheet unless prevented by the lower
15 end of the arm 160 being held in raised position.

164 is a projection on the side of the bar 143 which has its face beveled, as shown at 165. This projection is located in position
20 to pass under the roller 161 of the arm 160 when the bar 143 is drawn into its forward position but which will not be under the roller when the bar is in its rearward position. From this it will be seen that since
25 the bar is in its forward position during the return stroke of the bed the feed roller 96 will be raised out of contact with the roller 100 and the front stops into the path of a sheet fed down the feed table. As it is desirable to hold the feed rollers out of contact and the front stops raised until after the bed has commenced its forward movement, I mount on the side of the bed a block 166 provided with an elongated slot 167, through
35 which passes a set screw 168 and by means of which the block may be adjusted longitudinally of the bed. This block is provided on its rearward end with a nose 169 adapted to pass under the roller 161 just before the
40 projection 164 is moved out from under the roller. The feed rollers 96 and the front stops 124 will consequently not be lowered until after the bed has moved forward the desired distance, which depends upon the
45 position to which the block 166 is adjusted, since the arm 160 will be supported until after the rear end 169 of the block 166 has passed out from under the roller 161.

As it sometimes happens because of the
50 fact that no sheet is to be fed forward, or for some other reason, it is not desirable to have the impression roller in contact with the form during the printing or forward stroke, and as it is also desirable to be able
55 to throw the impression roller off impression during the printing stroke, I have provided a throw off mechanism which will operate to cause the bar 143 to move forwardly whenever the throw-off mechanism
60 is operated, and consequently will operate, through the rack 88, to turn the eccentric shaft 80 and raise the impression roller at any part of the printing stroke. The mechanism illustrated for accomplishing this result comprises a lever 170, provided with an

elongated opening 171, through which passes a stud 172, the stud being secured to the side frame 52, whereby the lever is permitted to oscillate around the stud and may also have a short vertical movement. This
70 lever is provided at its upper end with an operating handle 173 located in convenient position to be quickly reached by the operator. 174 is a hook formed in the side of the lever and adapted to engage a projection 175
75 formed on the under side of the guide 175' for the lever when the lever is in its upper position, whereby the lever will be held from oscillation unless depressed to disengage the hook 174 from the projection 175.
80 176 is a spring secured at one end to the lower end of the lever 170, and at the other end to the upright 107 which supports one side of the feed table. The point of attachment of the spring to the lever is below its point of attachment to the upright, so that the pull of the spring is in a direction to hold the lever raised, and consequently to hold the hook 174 in engagement with the projection 175. When the
90 lever is depressed by pressing upon the handle 173 this movement will disengage the hook 174 from the projection, and the spring will operate to move the lever in a direction away from the projection and consequently
95 toward the front of the machine. 177 is a bar pivoted at one end to the lever 170, and having its other end extending over the bar 143 with its free beveled end 178 adjacent to the block 153 and just in front of the
100 head 157 of the latch 154. Upon releasing the lever 170 from the catch 175 by depressing the handle 173 the pull of the spring 176 will force the bar 177 forward under the head 157, whereby the head is raised from
105 its position in the front of the block 153, so that the bar 143 is unlocked and then the bar 177 will continue its forward movement until it strikes the projection 149 on the bar 143, when it will move the bar 143 to
110 its forward position, thus producing the same result as when this bar is moved forwardly by the movement of the bed. The strength of the spring 176 is sufficient to effect this operation of the bar 143. From
115 this construction it will be seen that it is only necessary to depress the lever 170 by striking the handle 173 to cause the spring 176 to operate and move the bar 143 in the manner just described. The effect of this
120 movement is to rotate the shaft 80 through the rack 88, which raises the impression roller and also the upper feed roll and the front stops, so that the bed will travel beneath the impression roller without the impression roller being in contact therewith
125 and no sheet can be fed into the machine. Upon returning the lever 170 to its normal position shown in the drawings the parts will be returned to their normal position, 130

and as soon as the bed strikes the head 150 upon its rearward stroke the impression roller will again be thrown in position to co-act with the type.

5 I provide a means for moving the inking ribbon over the type after each printing stroke of the bed, which means does not operate when the impression roller is thrown off impression. In the particular form of
10 mechanism in which I have illustrated this feature of my invention, I provide each end of the bed with a pair of projecting brackets, each pair being composed of a bracket 180 and 181. Rotatably mounted
15 on each of the brackets 180 is a ratchet wheel 182, provided with a central hub adapted to engage the bore of the ribbon spool, and also provided with a projecting pin 184, adapted to engage an opening in
20 the end of the spool to cause the spool to rotate with the ratchet wheel. The brackets 181 are perforated to receive a hub 185 on the opposite end of the spool.

186 is a leaf spring secured to one end of the side of the bed and adapted to rest against the end of the spool and prevent it rotating freely.

Depending from the under side of the bed 31 are a pair of brackets 187, from each of
30 which extend a pair of screws 188, 189, the screws 189 guiding a longitudinally moving bar 190 by passing through elongated slots 191 in said bar. 192 is a second bar mounted on the screws 188 for longitudinal movement
35 by the screws passing through elongated slots 193 in said bar. The bar 192 is adapted to be moved in either of two positions, and is held in these positions by means of a wedge-shaped pin 194, which is adapted to
40 engage notches 195 in the top of said bar, said pin being mounted in a recess in the lower side of the bed and being pressed outwardly by means of a spring 196.

197 is a handle extending down from the
45 bar 192 by means of which it is given its reciprocatory movement.

Pivoted on one end of the bar 190 is a pawl 198 adapted to engage the teeth of the ratchet wheel 182 adjacent thereto, and 199
50 is a pawl mounted on the other end of the bar 190 and provided with a hook 200 which is adapted to engage the teeth of the ratchet wheel 182 at the opposite end of the bed.

201 are coil springs connected at one end
55 to the pawls 198 and 199 respectively, and at the opposite end to the under side of the bed, whereby the spring tends to hold the pawls in engagement with the ratchets. Each of the pawls 198 and 199 is provided with an
60 upwardly extending cam surface 202 with which the ends of the longitudinally movable bar 192 are adapted to contact, and whereby either one of the pawls may be thrown out of engagement with its ratchet,
65 one of the pawls being thrown out of en-

gagement when the bar is moved to one of its positions, and the other when the bar is moved to the other position. As shown in Fig. 7, the pawl 199 is out of engagement with its ratchet, and the pawl 198 is in en-
70 gagement with its ratchet. Should the bar 192 be moved to the left as shown in this figure then the pawl 199 would be thrown out of engagement and the pawl 198 thrown into engagement.

203 are holding pawls mounted on the brackets 180 and are adapted to engage the ratchet teeth to prevent a backward rotation of the ribbon spools. These pawls are provided with downwardly projecting arms 204
80 which are engaged by the ends of the bar 192, so as to throw the holding pawl out of engagement with the ratchet at the same time that its operating pawl is thrown out.

From the foregoing description it will be seen that in order to operate the ribbon
85 spools to wind the ribbon from one spool onto the other it is merely necessary to reciprocate the bar 190 carrying the pawls, and in the form of my invention shown this is effected by a mechanism which I will now describe.

205 is a bar mounted on the under side of the side frame 52 by screws 206 passing through elongated slots 207 in the bar, said
95 bar being provided at one end with a hook 208 which extends into the path of the throw-off lever 170. The other end of the bar is provided with a hook 209 which extends into the path of an arm 210 extending
100 downwardly from the bar 190. The bar 205 carrying these two hooks is of such a length and so positioned that when it is moved, by moving the lever 170 into position to cause an impression to be made, which position is
105 shown in Fig. 3, the bar will be drawn forward and the hook 209 moved into position to be struck by the arm 210 just before the bed reaches rear end of its stroke. This will give the bar 190 a reciprocation to give the
110 pawl, which is in engagement with its ratchet, a sufficient throw to turn the ribbon spool a portion of the revolution. When, however, the lever 170 is moved into position to throw the cylinder off impression then the
115 hook-carrying bar 205 will be moved longitudinally by means of a spring 211, so that the hook 209 will not be struck by the arm 210, and consequently the ratchet mechanism will not be operated. In order to return the
120 bar 190 in the opposite direction, after it has been moved as just described, I provide the screw 189 with a projection 212, and on the bar 190 a pin 213 connected to the projection 212 by a coil spring 213'.
125

In order to count the number of impressions taken I mount on the arm 154, which carries the head 157, an arm 214 which is connected at its upper end to a counting device 215 of any ordinary or desired construc-
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tion. As the head 157 drops in front of the end of the block 153 when an impression is being taken, and as this movement is required in order to operate the counter, said counter will only be operated when the press is on impression. When it is thrown off the impression by the beveled end 178 of the bar 177, extending under the head, the counter will not operate.

10 In the operation of my machine the sheets may be fed by hand from the pile on the feed table 102 down into contact with the front stops during the return stroke of the bed, the impression roller at this time being out of
15 contact with the form. At the end of the stroke the part 151 contacts with the head 150 and moves the bar 143 as previously described, which throws the impression roller down into position to make contact
20 with the form as the same passes thereunder during the printing stroke. The upper feed rollers at this time are still held out of contact with the lower feed rollers because the block 166 is under the roll 161 of the arm
25 160. After the bed has started on its printing stroke this block moves out from under the arm 160, permitting the spring 162 to pull down the upper feed roll into biting contact with the lower feed roll, and at the
30 same time moving the front stops out of the path of the sheet, whereby the sheet will be fed between the impression roller and the form. Upon the bed nearing the end of its printing stroke and after the
35 form has completely passed under the impression roller the cam faced nose 159 will pass under the head 157 to raise the same just before the end of the bed strikes the shoulder 149 on the bar 143. The continued movement of the bed moves the bar
40 143 longitudinally, which through the rack 88 rotates the shaft 80 and raises the impression cylinder.

I realize that considerable variation is possible in the details of construction and arrangement of parts without departing from the spirit of my invention, and I therefore do not intend to limit myself to the specific form shown and described.

50 Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a printing machine, the combination with an impression roller, and a reciprocating form-carrying bed, said bed being provided with a slot intermediate of its ends through which an ink ribbon is adapted to be passed, so that said ribbon may be passed over a portion only of said form, and a bar
55 adapted to fit said slot whereby said bed may be used to support a form, some of the type of which can extend over the slot.

2. In a printing machine, the combination with a frame, an impression roller and a
65 form-carrying bed, of two ink-supplying

plates one mounted at each end of the bed, a pair of inking rollers mounted on the frame of the machine one adjacent each end thereof, one of which is adapted to receive ink from one ink plate and the other from the
70 other ink plate and each transfer ink to a portion of the form and means for feeding an ink ribbon over a portion of the form.

3. In a printing machine the combination with a frame, an impression roller and a
75 form-carrying bed, of brackets extending out from each end of the bed, an ink supplying plate rotatably journaled in each bracket, a pair of inking rollers mounted on the frame of the machine one adjacent each end thereof, one of which is adapted to receive ink
80 from one plate and the other from the other ink plate and each transfer ink to a portion of the form, each of said ink supplying plates being provided with a ratchet, a pair
85 of pawls mounted on the frame of the machine, one adapted to engage the ratchet of one plate and the other the ratchet of the other plate to rotate said plates and means for feeding an ink ribbon over a portion of
90 the form.

4. In a printing machine, the combination with an impression roller and a form-carrying bed, of two ink-supplying plates one mounted at each end of the bed, a pair of
95 inking rollers mounted on the frame of the machine one adjacent each end thereof, one of which is adapted to receive ink from one ink plate and the other from the other ink plate and each transfer the ink to a portion
100 of the form, and means for feeding an inking ribbon over a portion of the form not inked by the inking rollers.

5. In a printing machine the combination with a frame, an impression roller, and a
105 form-carrying bed, of two ink-supplying plates one mounted at each end of the bed, a pair of inking rollers mounted on the frame one adjacent each end thereof, one of which is adapted to receive ink from one ink plate
110 and the other from the other ink plate, and each transfer ink to a portion of the form, two sets of bearings mounted on the frame for one of said ink rolls, into either of which the roll may be mounted, whereby the combined
115 inking action of said two rolls may be caused to cover the entire printing form or only a portion thereof, and means for feeding an ink ribbon over the portion of the form not engaged by the inking rollers
120 when the inking rollers do not cover the entire form.

6. In a printing machine the combination with a reciprocating form-carrying bed, an impression roller driven by the bed and a
125 shaft carrying the impression roller, of sheet feeding means comprising a feed table having its front edge located adjacent to the line of contact between the form and the roller, a lower feed roller mounted in sta-
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tionary bearings below the feed table, a frame journaled on the shaft of the impression roller, an upper feed roller journaled in said frame, a bail secured to said frame and
 5 extending under the feed table, front stops extending up from the bail, gearing for driving said upper feed roll from the impression roller, and means operated by the bed for moving the frame carrying the upper
 10 feed roll and front stops to bring said upper feed roll into and out of contact with the lower feed roll and the front stops into and out of the path of the sheets to be fed.

7. In a printing machine the combination
 15 with a frame, of a reciprocating form-carrying bed mounted in the frame, an impression roller driven by the bed and journaled on the frame, of sheet feeding means having a sheet table located above the bed and pivoted
 20 on the frame at one side to swing horizontally, a support extending up from the other side of the frame and means on the sheet table to engage the support when the table is in sheet feeding position.

8. In a printing machine the combination
 25 with a frame, of a reciprocating form carrying bed mounted in the frame, an impression roller driven by the bed and journaled on the frame, of sheet feeding means having
 30 a sheet table located above the bed and pivoted on the frame at one side to swing horizontally, a support extending up from the other side of the frame, a notch in the upper end of said support and a projection on
 35 the sheet table adapted to engage the notch when the table is in sheet-feeding position.

9. In a printing machine the combination
 40 with a reciprocating form-carrying bed, an impression roller driven by the bed and mounted on a shaft above the bed, of sheet feeding means having a paper feed rest mounted with its front edge tangential to
 45 the lower portion of the impression roller, guide fingers extending from the edge of the feed rest into contact with the periphery of the impression roller, said guide fingers being hingedly connected to the feed rest, and
 50 springs yieldingly holding said guide fingers in contact with the impression roller.

10. In a printing machine the combination
 55 with a reciprocating form-carrying bed, an impression roller driven by the bed and mounted on a shaft above the bed, of sheet feeding means having a paper feed rest mounted with its front edge tangential to
 60 the lower portion of the impression roller,

guide fingers extending from the edge of the feed rest into contact with the periphery of the impression roller, a bar extending across
 65 the under surface of the paper feed rest, a pair of blocks slidably mounted upon said bar, and a guide finger hingedly connected to each of said blocks, and a spring for holding each of said guide fingers against the
 70 impression roller.

11. In a printing machine, the combination
 75 with an impression roller, of a reciprocating form-carrying bed, ribbon-carrying spools mounted on the ends of the bed, a ratchet wheel connected to each spool, a bar
 80 mounted for longitudinal movement on the bed, a pawl mounted on each end of the bar, each pawl being adapted to engage a ratchet, hand-operated means for throwing said
 85 pawls alternately out of engagement with their ratchets, and a part mounted on the frame adapted to engage the bar to move the same longitudinally.

12. In a printing machine, the combination
 90 with a frame, an impression roller, a reciprocating form-carrying bed, and manually operated means adapted to raise the impression roller out of contact with the form during the printing stroke, of ribbon
 95 carrying spools mounted on the bed, means mounted on the bed to rotate the spools to feed the ribbon across the form, means mounted on the frame adapted to engage the
 100 spool rotating means to actuate the same during the reciprocation of the bed, said actuating means on the frame being located in
 105 position to be rendered inoperative when said manually operated means is operated to raise the impression roller.

13. In a printing machine the combination
 110 with a frame, an impression roller and a reciprocating form-carrying bed, ribbon carrying spools mounted on the bed, a ratchet wheel connected to each spool, a bar on the bed mounted for longitudinal movement, a pawl on each end of the bar, each
 115 pawl being adapted to engage a ratchet, a second bar mounted for longitudinal movement on the bed and adapted to be moved into engagement with either pawl and dis-
 120 engage said pawl from its ratchet.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. MAHLSTEDT.

Witnesses:

W. G. YOUNG,
 F. S. BAKER.