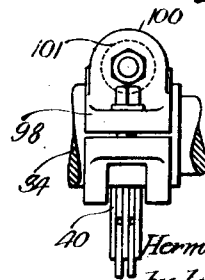
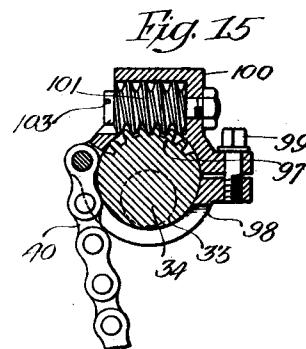
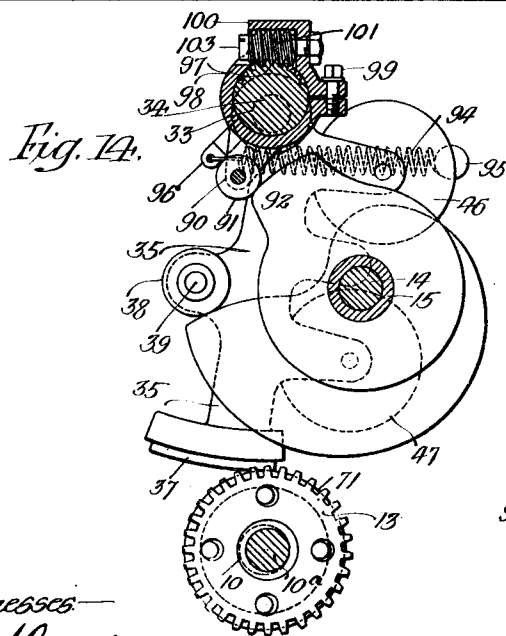
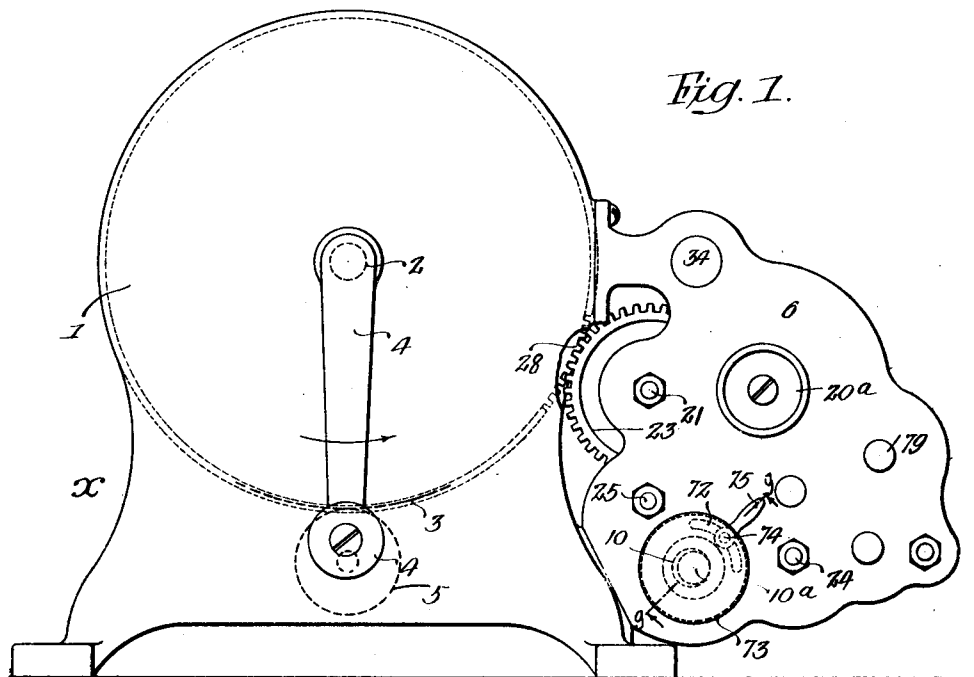


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8 SHEETS—SHEET 1.



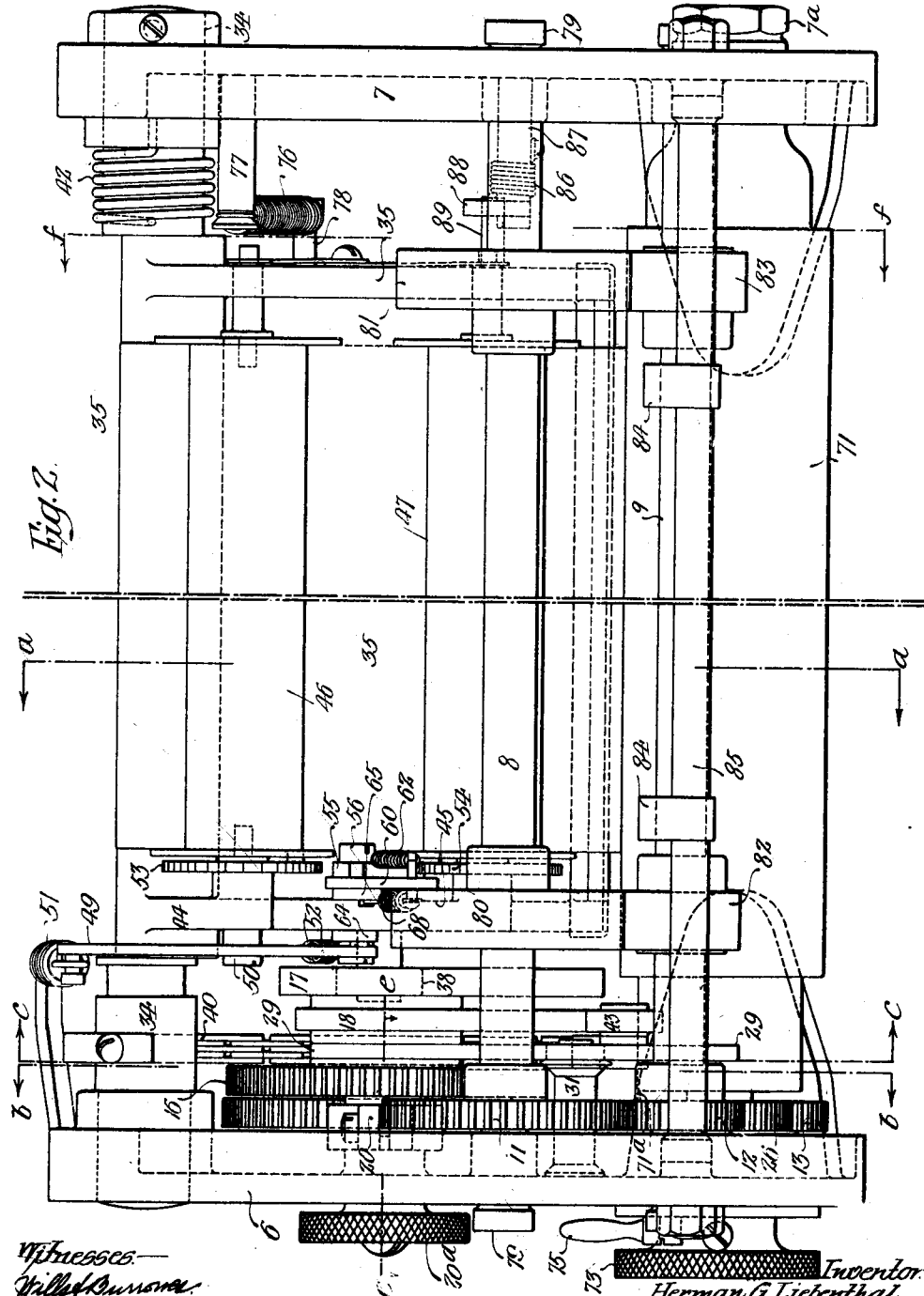
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1,055,928.

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PRINTING MECHANISM.

APPLICATION FILED JAN. 13, 1912.

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8 SHEETS—SHEET 3.

1,055,928.

Fig. 3

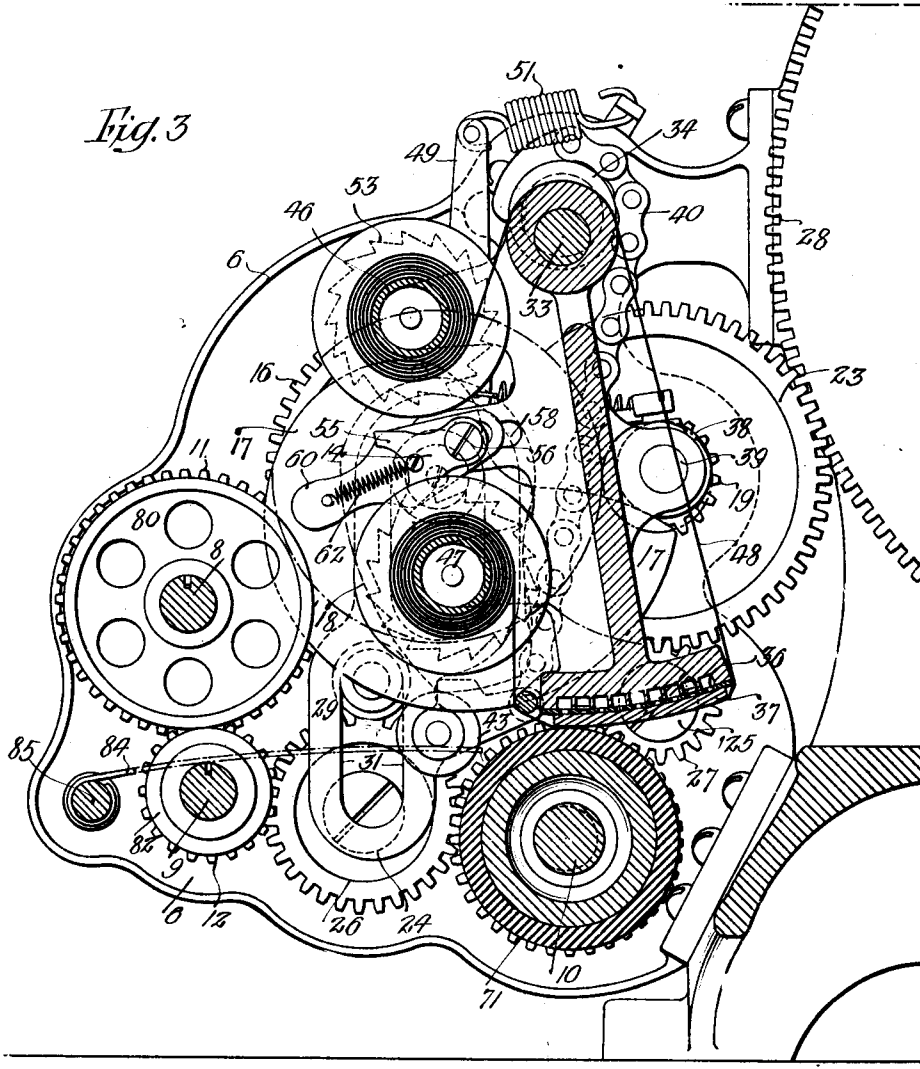
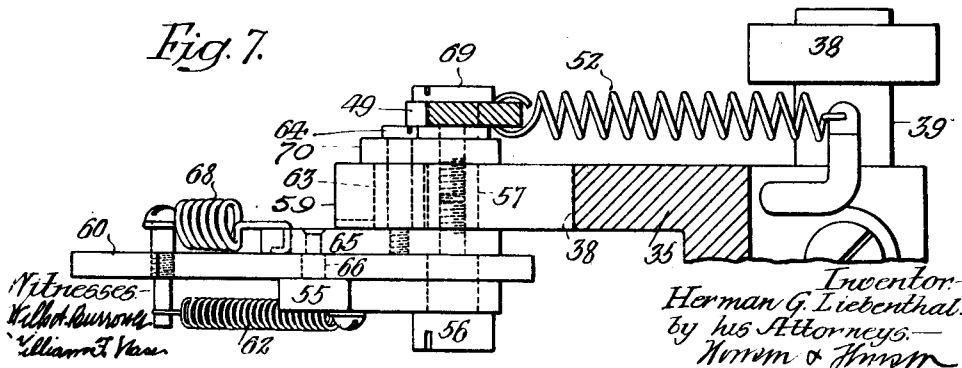


Fig. 7

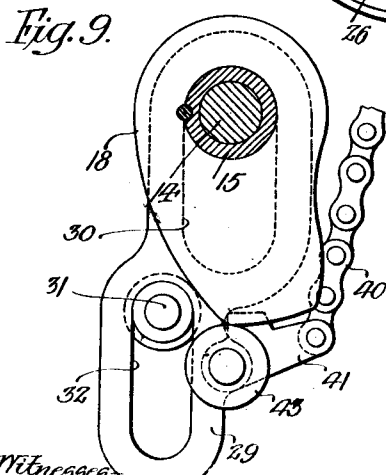
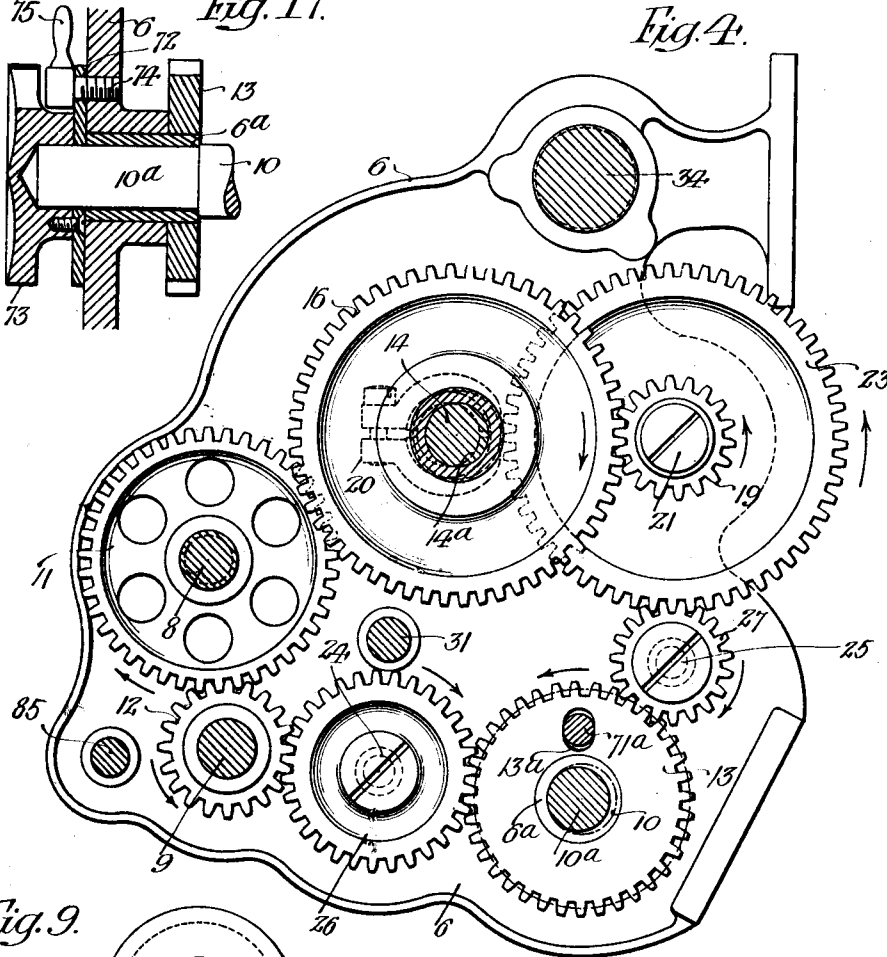
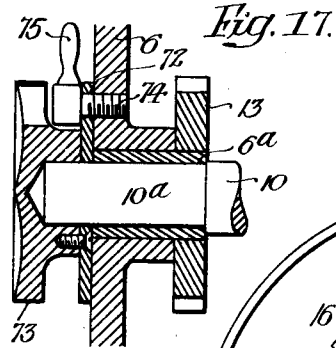


H. G. LIEBENTHAL.
 PRINTING MECHANISM.
 APPLICATION FILED JAN. 13, 1912.

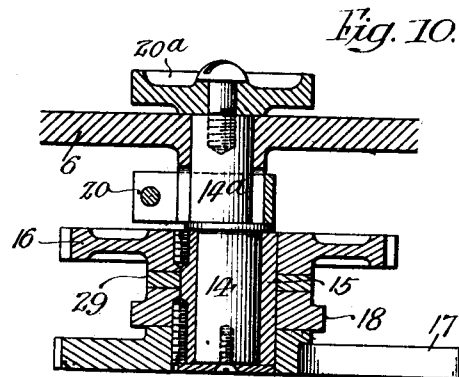
1,055,928.

Patented Mar. 11, 1913.

8 SHEETS—SHEET 4.



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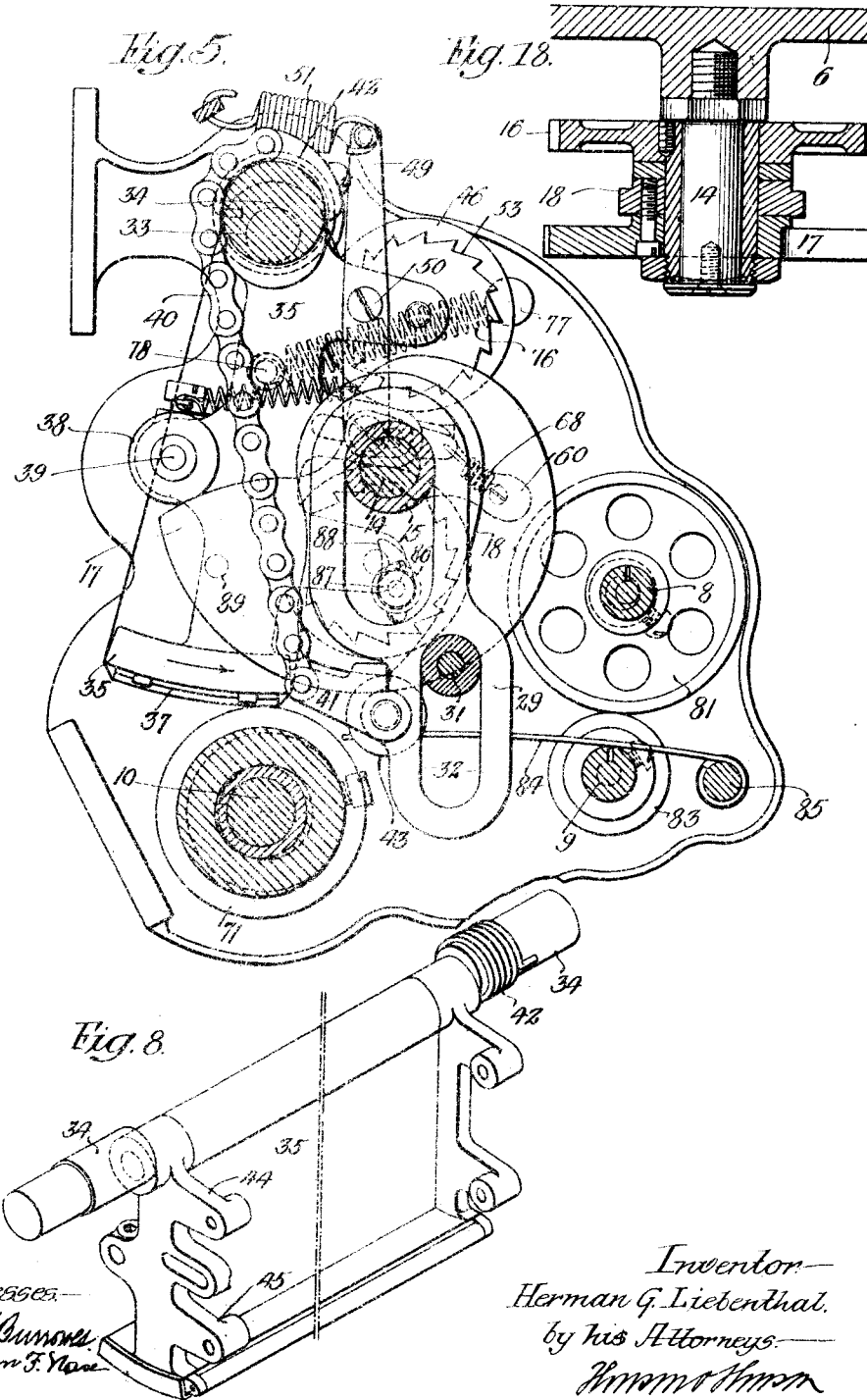


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1,055,928.

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8 SHEETS—SHEET 5.



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8 SHEETS—SHEET 6.

Fig. 6.

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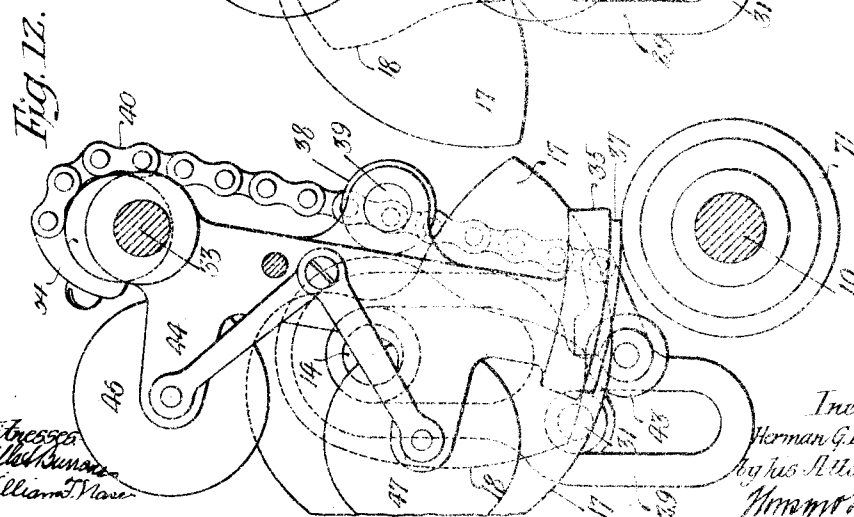
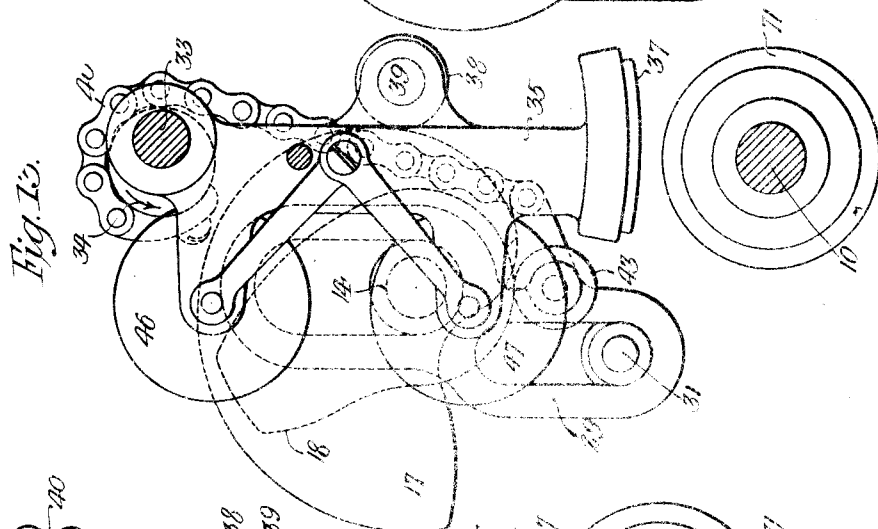
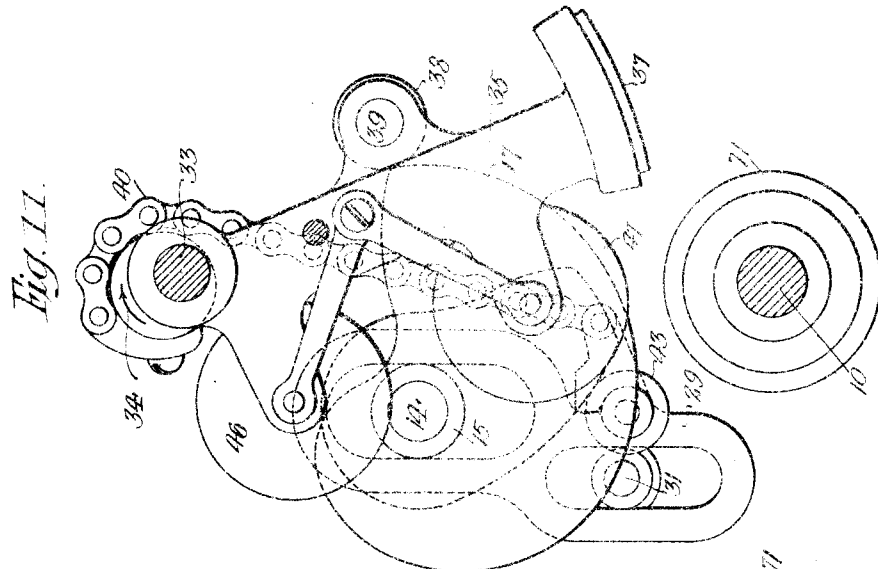
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APPLICATION FILED JAN. 12, 1912.

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8 SHEETS—SHEET 7.



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APPLICATION FILED JAN. 13, 1912

Patented Mar. 11, 1913.

8 SHEETS—SHEET 8.

1,055,928.

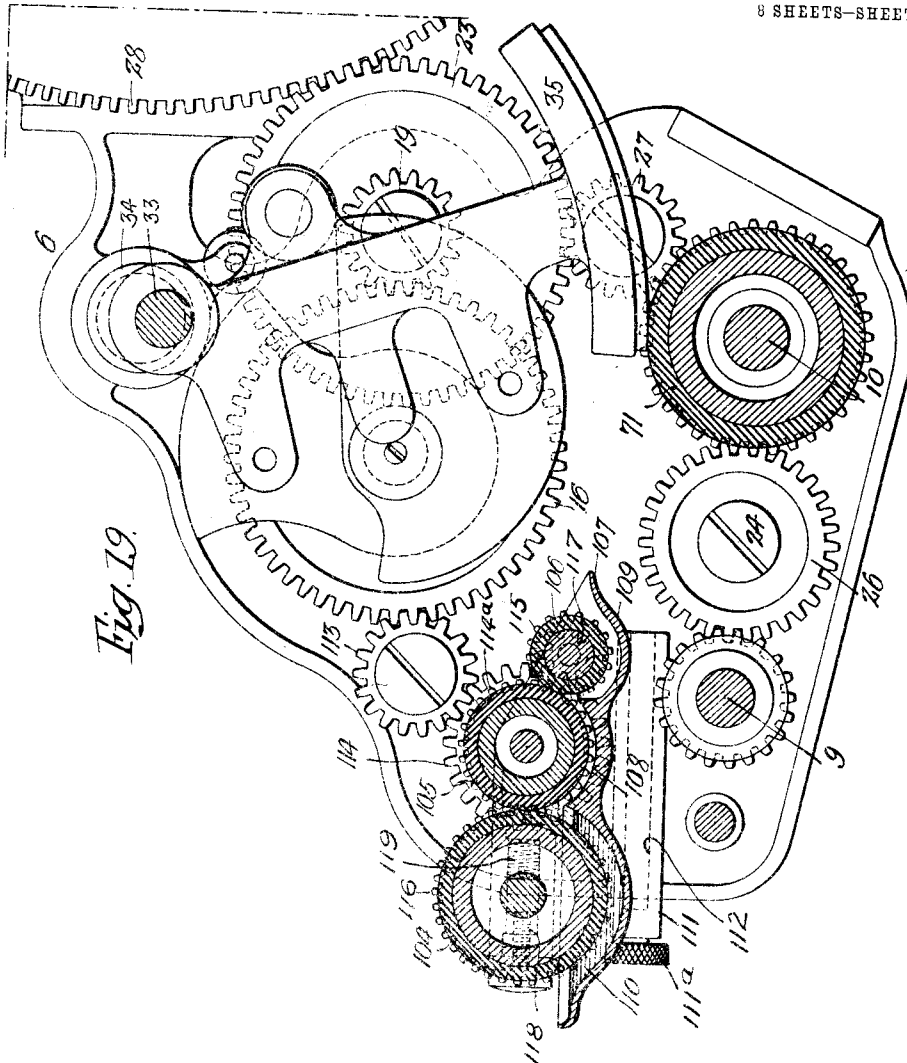


Fig. 79.

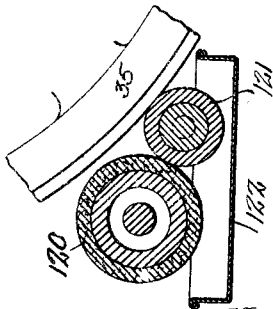


Fig. 20.

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UNITED STATES PATENT OFFICE.

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PRINTING MECHANISM.

1,055,928.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed January 13, 1912. Serial No. 671,029.

To all whom it may concern:

Be it known that I, HERMAN G. LIEBENTHAL, a subject of the Emperor of Germany, having declared my intention of becoming a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain improvements in Printing Mechanism, of which the following is a specification.

My invention relates to printing machines, and consists primarily of mechanism which is particularly serviceable when used as an auxiliary attachment for machines of the type known as "office" or "duplicating" machines for printing letters, circulars, etc., which have the appearance of having been separately written on a typewriting machine. When used for this latter purpose, my invention is especially adapted for printing electrotypes of signatures, signing clauses, letter heads, etc.

In the above mentioned types of "office" machines, the body of the letter or circular to be printed is "set up" by selecting and sliding individual type-letters from a magazine into grooves of a plate or rotatable cylinder and printed through the medium of an inked ribbon. As it is desirable to have the signing clause or signature made by an electrotpe and printed in a different color ink from the "body" of the letter, such signatures and signing clauses were heretofore made by a separate operation. In other words, after the body of the letters had been printed, the type constituting the body of the letter had to be removed from the rotatable cylinder and replaced in the magazine; then an electrotpe of the signature was inserted in the rotatable cylinder, after which a different color ink-ribbon was brought into operation and the letter again passed through the machine to receive the impression of the electrotpe. This not only required a loss of time in inserting the electrotpe and passing the letters, etc., through the machine twice, but often caused the same to become marred and unevenly printed.

The chief object of my invention is to construct printing mechanism of the above type that will make it possible to print, in one operation, letters having a signature or other matter produced in a color which is different from that of the body of the letter.

Another object is that the construction of my invention will be durable, easy to ad-

just and which may be easily attached to and coöperate with another printing machine when it is so desired.

These and other objects and advantages I attain in the following manner, reference being had to the accompanying drawings, in which:

Figure 1, is an end elevation of sufficient of a rotary printing machine to illustrate my invention; Fig. 2, is a front elevation of my invention on a larger scale than shown in Fig. 1; Fig. 3, is a sectional elevation taken on the line *a-a*, Fig. 2; Fig. 4, is a sectional elevation taken on the line *b-b*, Fig. 2; Fig. 5, is a sectional elevation taken on the line *c-c*, Fig. 2; Fig. 6, is an enlarged elevation of certain of the elements of my invention; Fig. 7, is a section on the line *d-d*, Fig. 6; Fig. 8, is a perspective view of a special form of type-carriage which I employ; Fig. 9, is a detail of certain of the elements of my invention; Fig. 10, is a section on the line *e-e*, Fig. 2; Figs. 11, 12 and 13, are partial sectional views taken on the line *f-f*, Fig. 2, and showing various stages of the carriage during one operation; Figs. 14 and 15, are sectional elevations showing modified forms of certain of the elements of my invention; Fig. 16, is a front elevation of the construction shown in Fig. 15; Fig. 17, is a section on the line *g-g*, Fig. 1, and Figs. 18, 19 and 20, are views of modified forms of my invention.

Referring to the drawings, the main frame 1 of a rotary printing machine forms a rotary support for a shaft 2 having a type-drum 3 and a handle 4 fixed thereto. A platen roll 5 is rotatably mounted on the frame 1 adjacent the type drum 3, and it is between the latter and the platen roll 5 that the blank sheets of paper are inserted. The foregoing elements may be of any known type and do not form a part of my invention.

Side brackets or frames 6 and 7 are secured to the main frame 1 and form the support for two rotary shafts 8 and 9 and a shaft 10 having eccentric trunnions 10^a. Intermeshing gear wheels 11 and 12 are keyed to the shafts 8 and 9, respectively. A gear 13 is loosely mounted on a sleeve 6^a; the latter forming a bushing for and concentric with one of the trunnions 10^a. The other of the trunnions 10^a extends into an eccentric recess in a nut 7^a. An elliptical

slot 13^a is formed in the gear 13 and forms a driving means more fully referred to hereinafter. A stud shaft 14 having eccentric trunnions 14^a is mounted in the bracket 6 and forms a bearing for a rotatable sleeve 15 having a gear wheel 16, and cams 17 and 18 fixed thereto. A gear 19, intermeshing with gear 16, is rotatably mounted on a stud shaft 21. Another gear 23, made integral with the gear 19 in the present instance, is also journaled on the stud shaft 21. Two stud shafts 24 and 25 extending from the bracket 6 form a bearing for two gears 26 and 27; the gear 26 being in mesh with the gears 12 and 13; and the gear 27 being in mesh with the gears 13 and 23. A main driving gear wheel 28 in the present instance is fixed on the shaft 2 and meshes with the gear 23.

The sleeve 15 forms a guide for a lever 29 by passing through a slot 30 in the said lever. In like manner, a rod 31 attached to the bracket 6, acts as a guide for the lever 29 by passing through a slot 32 therein, (Fig. 9). A shaft 33 having eccentric trunnions 34 is journaled in the brackets 6 and 7. A pendent or carriage 35 is journaled on the shaft 33 and is grooved at 36 for the reception of type or electrotypes 37. An anti-friction wheel 38 is journaled on a pin 39 extending from the carriage 35 and adapted to be engaged by the cam 17 to rock or swing the said carriage in a manner more fully referred to hereinafter. A chain 40 has one end attached to a trunnion 34 and the other end attached to an arm 41 extending from the lever 29. The chain 40 is always kept taut by the action of a torsion spring 42 which has one end attached to one of the trunnions 34 and the other end attached to the bracket 7. The cam 18 engages an anti-friction roll 43 on the lever 29 and serves to lower said lever and the chain to turn the eccentric trunnions 34, thereby lowering the carriage 35. The carriage 35 has lugs 44 and 45 which form journals for spools 46 and 47 having ratchet wheels 53 and 54 keyed thereon respectively; an inked ribbon 48 having one end rolled on the spool 46, passes under the electrotypes and has the other end rolled on the spool 47, as clearly shown on Figs. 3 and 6.

A double-arm lever 49 is pivoted on the carriage 35 at 50; and a tension spring 51 has one end connected to the frame 6 and the other end to one arm of the lever 49. In like manner, a tension spring 52 is attached to the other arm of the lever 49 and to the carriage 35. The said spring 51 is stronger than the spring 52 so that the spring 51 would normally tend to attenuate the spring 52. A double pawl 55 is pivoted on the shank of a screw 56; the said screw having its inner end engaging a tapped bore of a sleeve 57 adapted to a

slot 58 in an extension 59 of the carriage 35. A shifting lever 60 is provided with a slot 61 through which passes the shank of the screw 56, and a tension spring 62 is centrally connected to the pawl 55 and to the shifting lever 60. A second sleeve 63 is also movable within the slot 58 and a pin 64 passes through the sleeve 63 and is screwed into a locking plate 65. A portion of the screw 56 also passes through a bore in the plate 65 so that the said plate 65 cannot possibly have a rocking motion with respect to the carriage 35, but can slide in a direction as prescribed by the slot 58. The plate 65 is provided with a pin 66 which cooperates with a V-shaped slot 67 formed in the shifting lever 60; a tension spring 68 tending to hold either end of the slot 67 against the pin 66, and in so doing, tends to hold either end of the pawl 55 in engagement with its respective ratchet wheel 53 or 54. A pin 69 passes through the lever 49 and a plate 70, and is screwed into the sleeve 57, (Fig. 7). The pin 64 also passes through the plate 70 so that the latter acts as a slide operable against the outside surface of the extension 59.

A rubber coated roller 71 is loosely mounted on the shaft 10, and has a pin 71^a projecting from one end and engaging the slot 13^a in the gear wheel 13. A hand wheel 73 is keyed on the trunnion 10^a adjacent the sleeve 6^a. The hand wheel 73 is slotted at 72, and pin 74, threaded at the free end, projects from the frame 6 and extends through the slot 72. A lever 75 is mounted on the threaded portion of the pin 74, and when turned, tends to lock or unlock the hand wheel. A tension spring 76 has one end attached to a pin 77 extending from the frame 7 and the other end attached to a pin 78 carried by the carriage 35; the function of the spring 76 being to move the carriage 35 in the direction of the arrow, Fig. 5, to print. The shaft 8 is adjustably mounted in eccentric bearings 79 in the frames 6 and 7, and is provided with wheels 80 and 81 which contact with wheels 82 and 83 on the shaft 9 and form a conveying means for the paper after the latter has been printed. Strips 84 of metal or other suitable material are attached to a bar 85 and lead to a point adjacent the contacting point of the platen roller 71 and form a supporting protective means for the paper after the latter has been printed to guide the same between the conveying wheels 80-83. A torsion spring 86 has one end secured to a pin 87 and the other end attached to a pivoted latch lever 88. The carriage 35 carries a lug 89 which is adapted to strike the lever 88; the latter tending to tighten the spring 86 and act as a buffer for the carriage 35 so as to prevent the anti-friction roller 38 from pounding on the cam 17.

In order that the operation will be easily understood, it will be assumed that the machine is at present equipped for writing and signing a letter; the main cylinder 3 being "set up" to print the "body" of the letter and the carriage 35 carrying an electrotpe to print the signature.

The operation is as follows: The blank paper is inserted at *a* and between the cylinder 3 and the platen roller 5. The handle 4 is then turned in the direction of the arrow, Fig. 1, and the paper is thereby fed toward the top of the rubber coated roller 71. In passing between the cylinder 3 and the platen roller 5, the "body" of the letter is printed thereon. As the cylinder 3 is being rotated, the gear 28 imparts motion to the chain of gears 23, 19 and 16, and 23, 27, 13, 26, 12 and 11. The gear 16, being keyed to the sleeve 15 rotates the cams 17 and 18. The cam 18 acts against the anti-friction roller 43 to lower the lever 29, (see Fig. 9), and thereby pull the chain 40. In so doing, the eccentric trunnions 34 are turned (in the direction indicated by an arrow, Fig. 11) against the action of the torsion spring 42, so as to lower the shaft 33 and necessarily the carriage 35. When the carriage 35 has been lowered the prescribed distance, the anti-friction roller 38 is opposite a steep portion of the cam 17 so that the spring 76 will contract and swing the carriage 35 so that the electrotpe 37 will contact with the paper to print the signature. The roller 71 is driven through the medium of the pin 71^a extending into the slot 13^a and, as the gear 13 is timed to give the roller 71 the same surface speed as the cylinder 3, feeds the finished letter toward the conveying wheels or rollers 80—83 from where they are ejected. After the electrotpe has finished printing, (Fig. 12) the cam 18 passes away from the anti-friction roller 43, and the torsion spring 42 turns the trunnions 34 in the direction of the arrow, Fig. 13, and by so doing, winds the chain 40 thereon and raises the shaft 33 and carriage 35. As the chain 40 is wound on the trunnion 34, the lever 29 will be raised to the position shown in Fig. 13. After the electrotpe has been raised, the cam 17 engages the anti-friction roller 38 and swings it into the position shown in Fig. 11, and the operation is again repeated to print the next letter. When it is desired to change the position of the electrotpe impression with respect to the body portion of the letter, the clamp band 20 is loosened and the hand wheel 20^a turned until the gear 16 moves out of mesh with the gear 19. The cams 17 and 18 can then be shifted to any desired position, after which by again turning the hand wheel 20^a the gear 16 can be brought into mesh with the gear 19. Thus it will be noticed that with my invention, a signature or other impression can

be made on any desired position of a sheet of paper, and that the cams can readily be adjusted to change the time and position of the impression. For example, if the carriage 35 is operating to print a signature at the extreme bottom of the letter and it is desired to have the signature printed in another position with respect to the body of the letter, it is only necessary to turn the hand wheel 20^a to unmesh the gears 16 and 19 and turn the cams 17 and 18 to a position that will allow the carriage 35 to move in contact with the roller 71 at the proper time to make the impression in the desired place. The roller 71 may be bodily adjusted toward or from the carriage 35 by loosening the lever 75 and turning the hand wheel 73 to vary the character of the impression. Or, if it is desired to change the alinement of the roller 71 with respect to the carriage, it is only necessary to turn the eccentric nut 7^a.

The movement of the carriage 35 effects the feeding of the inked ribbon 48 over the face of the electrotpe 37 in the following manner: Considering that the shifting lever 60 has been manually lowered to the position shown in Fig. 6, the forward movement of the carriage, (see arrow, Fig. 6) allows the spring 52 to slide the pawl 55 over one of the teeth of the ratchet wheel 54 without turning the latter. On the return movement of the carriage 35, the latter will move faster than and away from the pawl 55, and, as the spool 47 having the ratchet wheel 54 thereon is directly connected to the carriage 35, the ratchet wheel 54 and spool 47 will be rotated thereby, causing the inked ribbon 48 to be wound on the spool 47 to bring a fresh portion of the said inked ribbon into contact with the electrotpe 37. When the spool 46 is nearly empty, the shifting lever 60 can be raised until the upper tongue of the pawl 55 meshes with the teeth of the ratchet wheel 53, and the spool 46 is rotated to rewind the inked ribbon thereon by the movement of the carriage 35 in exactly the same manner as above described relative to the spool 47. The lever 60 is locked in its raised position owing to the fact that the lower end of the V-shaped slot 67 will be pressed against the pin 60. The spring 51 will act as a safety means to prevent the ends of the inked ribbon from being torn away from their respective spools in case the operator fails to notice when either spool becomes nearly empty; the spring 51 being just strong enough to resist, without stretching, the friction necessary to rotate the spools under ordinary conditions, but will stretch if any additional friction is added, and by stretching will not allow the pawl to rack with a ratchet wheel. In other words, if the friction on either spool is increased beyond the resisting

strength of the spring 51, the pawl 55 will move in the same path with the carriage 35 and the spring 51 will stretch.

In the form of my invention shown in Fig. 14, I have dispensed with the chain and substituted an arm 90, having an anti-friction roller 91 at one end, attached to a split clamp band 98 on one of the trunnions 34. A cam 92 on the sleeve 15 operates against the anti-friction roller 91 to move the arm and thereby turn the trunnion to lower the carriage 35. I may use the torsion spring 42 to operate against the action of the cam 90 for raising the carriage 35, or I can use a tension spring 94. In the latter case, the said tension spring 94 has one end attached to a projection 95 on the frame and the other end attached to a lever 96 extending from one of the trunnions 34. Also in Fig. 14, I have shown means for adjusting the carriage 35 to allow for variable printing impressions. In this latter case, the trunnion 30 is milled over a portion of its surface to form worm teeth 97 and the split band 98 placed thereon. The split band may be clamped to the said trunnion by means of a screw 99. An extension 100 of the band 98 forms the housing for a rotatable worm 101 which meshes with the teeth 97 and has a slot 103 formed therein. When it is desired to raise or lower the shaft 33 and carriage 35 independently of the regular operation of the machine, the screw 99 is loosened and the worm 101 turned by a screw driver or other means. For most classes of work, I prefer to use the construction of the printing elements shown in Fig. 14 as the same permits a very accurate adjustment.

In Figs. 15 and 16, I have shown a construction where the carriage adjustment means can be used in case I desire to use the chain formation. In cases where it is desired to attain a very accurate adjustment of the cams to properly position the electrotype impression with respect to the body of the letter, I have shown (Fig. 18) a construction where the cams can be adjusted without throwing the gears 16 and 19 out of mesh.

The form shown in Fig. 19 shows means for supplying ink direct to the electrotype by means of a series of rollers 104, 105 and 106, journaled in a tray 107. The bottom of the tray 107 is shaped so as to form drip receptacles 108 and 109 for the rollers 105 and 106 respectively and an ink fountain 110 into which the roller 104 extends. The tray 107 has bars 111 connected thereto and adapted to slide within slideways 112 in the frames 6 and 7 and to be locked by set screws 111^a. A gear 113 meshes with the gear 16 and a gear 114 loose on the roller 105. The gear 114 meshes with a gear 115 fixed to the roller 106. Another gear 114^a

is keyed to the roller 105 and meshes with gears 116 and 117 fixed to the rollers 104 and 106 respectively. Adjusting means for the roller 104 comprise a set screw 118 and a compression spring 119 which are housed within the tray 107 and adapted to press against the axle of the roller 104, and to move the latter toward or away from the roller 105 when the set screw 118 is turned. Motion is imparted through the gears 113-118 to the roller 104 which conveys the ink to the roller 105 which in turn carries the ink to the roller 106. The electrotype during the forward swing of the carriage contacts with the roller 106 and receives ink therefrom. The roller 106 also tends to feed the carriage at the same time as the latter is being inked, thus insuring an equal distribution of ink over the electrotype.

In Fig. 20, I have shown another form of supplying ink directly to the electrotype and consists of two rotatably mounted rollers 120 and 121. The roller 120 is covered with an absorbent material which is kept saturated with ink. In operation, the surface of the roller 121 is kept covered with ink by being in contact with the roller 120 and the carriage moves the electrotype in contact with the roller 121 and receives a coating of ink therefrom. A drip pan 122 is placed beneath the rollers 120 and 121 so as to catch any ink that may drop therefrom.

While I have described the carriage 35 as carrying an electrotype of a signature in the operation of my invention, it will be understood that any kind of type can be placed within the grooves of the carriage to print letter heads or other desirable material. Also, two or more carriages can be arranged in tandem form to print different impressions in one passage of the paper through the machine.

By using the carriage 35 in the manner described, I am able to attain clear-cut even impressions on long and short paper, and the type carrying area of the bottom of the carriage may be of any size.

It will be further understood that while I have illustrated and described my invention in combination with a rotary printing machine my invention can be used with other forms of machines or independently of another machine.

I claim:

1. The combination of a rotatably mounted cylinder having type thereon; a platen roller cooperative with the cylinder to form an impression on a strip of paper when the latter is inserted between the cylinder and the platen roller; a swingably mounted carriage having type thereon; a second platen roller cooperative with the carriage; means for rotating the latter platen roller; means

for swinging the carriage forward from its normal position and in contact with the surface of the latter platen roller; and automatic means for returning the carriage to its normal position without contacting with the latter platen roller.

2. The combination of a rotatably mounted cylinder having type thereon; a platen roller coöperative with the cylinder; a carriage swingably mounted adjacent the said cylinder and having type thereon; a second platen roller; means actuated by the rotation of the cylinder for moving the latter platen roller; means for moving the carriage forward from its normal position and into coöperative position with the platen roller to form impression on the strip of material moved therebetween by the rotation of the cylinder; and means for returning the carriage to its normal position at a distance remote from the latter platen roller, said means being operable by the rotation of the said cylinder.

3. The combination of a rotatably mounted cylinder having type thereon; a platen roller coöperating with the said cylinder; a carriage swingably mounted adjacent the cylinder, type carried by said carriage; a second platen roller coöperating with the type of said carriage; means for inking the type; means for rotating the said cylinder for printing and feeding a strip of paper placed between the said first platen roller and the cylinder and in a path tangent to the outer surface of the second mentioned platen roller; means for moving the carriage from its normal position in contact with the paper to form another impression on the latter; means for moving the carriage to its normal position, said latter movement of the carriage being at a point remote from the paper and latter platen roller; and means for rotating the second mentioned platen roller.

4. The combination of a rotatably mounted cylinder having type thereon; a platen roller coöperative with the cylinder; a carriage swingably mounted adjacent the cylinder; type on the said carriage; a platen roller coöperative with the type on the carriage; means for inking the type; means for rotating the cylinder for printing and feeding the strip of paper placed between the cylinder and the first mentioned platen roller to a point tangent with the surface of the second mentioned platen roller; means for moving the carriage from its normal position into printing engagement with the paper while the latter is being fed by the said first platen roller and cylinder; means for moving the said carriage back to its normal position, said path of said latter movement being remote from the second platen roller and the paper and actuated by the movement of the said cylinder; and means

for rotating the second platen roller, said means being operative by the movement of the said cylinder.

5. The combination of a rotatably mounted cylindrical drum; type on said drum; a platen roller coöperative with the type; a second platen roller; a shaft; a carriage pivoted on the shaft; type carried by the carriage; means for inking the type; means for rotating the said cylinder and the first mentioned platen roller to print a piece of paper placed therebetween and to feed the latter to a point tangent to the outer surface of the platen roller; means for moving the carriage concentric with the said shaft to print another impression on the paper; means for moving the carriage away from the second platen roller and paper to its normal position; and means for rotating said second platen roller.

6. The combination of a type carrier; type mounted thereon; a platen coöperative with the type; an auxiliary carriage swingably mounted adjacent the type carrier; type mounted on the said carriage; means for inking the said type; a platen for the said carriage; means for moving the said type carrier to print a strip of paper placed between the first mentioned platen and the said type second mentioned platen; means for moving the said carriage into contact with the paper to make another impression thereon; means for moving the said carriage to a point remote from the said second platen and the paper; and means for returning the said carriage to its normal position.

7. The combination of a rotatably mounted cylinder; type mounted thereon; a platen roller coöperating with the type on the cylinder; a shaft; a carriage pivotally mounted on the shaft; type mounted on the carriage; means for inking the type; a second platen roller coöperating with the carriage; means for rotating the cylinder and the first mentioned platen roller to print a sheet of paper and to feed the latter to a point tangent with the outer surface of the second platen roller; means for moving the carriage in a path concentric to the axis of the shaft and into printing engagement with the paper while the latter is against the second platen roller and to form a second impression of the paper; means for bodily moving said shaft to move the carriage away from the second platen roller; means for returning the carriage toward its normal position; means for rotating the second platen roller; and means for again bodily moving the shaft to move the carriage into the position occupied before the said concentric movement.

8. The combination of a rotatably mounted cylinder; type mounted on the cylinder; a platen roller coöperative with said type; a shaft; a carriage pivotally mounted on the

shaft; type carried by the carriage; means for inking the type; a second platen roller coöperative with the type on the carriage; means for rotating the cylinder and first mentioned platen roller to print a strip of paper placed therebetween and to feed the said strip of paper to a point tangent with the outer surface of the second platen roller; means for moving the carriage in a path concentric with the axis of the shaft and to print the paper while the latter is against the second platen roller; means for raising the shaft to move the carriage away from the second platen roller and the paper; and means for returning the carriage while in its raised position to its normal position.

9. The combination of a rotatably mounted cylinder, having type thereon; a platen roller coöperative with the type and the cylinder; a shaft; a carriage pivotally mounted on the shaft; a type carried by the carriage; means for inking the type; a second platen roller; means for rotating the platen roller; means for rotating the cylinder and the first platen roller to print and to feed the paper to a point tangent with the outer surface of the second platen roller; means for swinging the carriage in a path concentric with the axis of the shaft and into printing engagement with the paper while the latter is against the second platen roller; means for increasing the distance between the axis of the shaft and the surface of the second platen roller; means for returning the carriage to its normal position; and means for removing the said sheet of paper from the second platen roller.

10. The combination of a rotatably mounted cylinder, having type thereon; a platen roller coöperative with the type and the cylinder; a shaft; a carriage pivotally mounted on the shaft; type carried by the carriage; means for inking the type; a second platen roller; means for rotating the platen roller; means for rotating the cylinder and the first platen roller to print and to feed the paper to a point tangent with the outer surface of the second platen roller; means for swinging the carriage in a path concentric with the axis of the shaft and into printing engagement with the paper while the latter is against the second platen roller; means for increasing the distance between the axis of the shaft and the surface of the platen roller; means for returning the carriage to its normal position; means for removing the said sheet of paper from the second platen roller; and means for moving the second platen roller toward or from the type on the said carriage.

11. The combination of a supporting structure; a cylinder rotatably mounted on the supporting structure, having type thereon; a platen roller coöperative with the type on the said cylinder; a shaft adjacent said

cylinder; a carriage pivotally mounted on said shaft; type mounted on said carriage means for inking said type; a second platen roller coöperative with the type of the carriage; means for rotating said second platen roller; means for rotating said cylinder and first mentioned platen roller to print and to feed a strip of paper to a point tangent with the outer surface of the second platen roller; an auxiliary frame attached to the supporting structure; a tension spring having one end attached to the auxiliary frame and the other end attached to the said carriage; eccentric trunnions on said shaft and journaled in said auxiliary frame; an arm connected to one of said trunnions; an anti-friction roller on said arm; a cam engaging the anti-friction roller; an anti-friction roller on said carriage; a second cam engaging the latter anti-friction roller to swing the carriage on the shaft in one direction; means for actuating said cams; and means operable on the carriage to swing the latter in the opposite direction on the shaft.

12. The combination of a supporting structure; a cylinder rotatably mounted within the supporting structure; type carried by said cylinder; a platen roller coöperative with the type of said cylinder; an auxiliary frame; a shaft having eccentric trunnions, said trunnions being journaled in the auxiliary frame; a carriage pivotally supported on the shaft; a second platen roller; type carried by the carriage; means for inking the type; means for rotating the second platen roller; means for rotating the cylinder and the first mentioned platen roller to print and to feed a strip of paper to a point tangent with the surface of the second platen roller; means for moving the carriage in a path concentric with the axis of the shaft and into printing engagement with the paper while the latter is in contact with the second platen roller; means for partly rotating the said trunnions in one direction to move the carriage out of contact with the paper and the platen roller; and means for returning the carriage to its normal position while the latter is away from the paper and the second platen roller.

13. The combination of a supporting structure; a cylinder rotatably mounted in the supporting structure, and having type mounted thereon; a platen roller coöperative with the type on the cylinder; an auxiliary frame attached to the supporting structure; a shaft adjacent the said cylinder and having eccentric trunnions journaled within the said auxiliary frame; a second shaft mounted in said auxiliary frame; a gear wheel rotatably mounted on said latter shaft; two cams adjustably keyed to said gear wheel; a carriage pivotally attached to said first shaft; type carried by said carriage; means for inking said type; a second

platen roller coöperative with the type on the carriage; a sleeve adjustably clamped on one of said trunnions; an arm on said sleeve; an antifriction roller on said arm; means for holding said anti-friction roller in contact with one of said cams; an antifriction roller on the carriage; means for keeping the latter antifriction roller in contact with the second of said cams; a gear carried by the said cylinder; intermediate gears connecting the gear on the cylinder with the gear on said shaft; a sleeve mounted within one section of the auxiliary frame; a gear mounted on said sleeve and having a slot therein; a pin on said second platen roller and engaging the slot in said gear; a shaft forming a rotatable support for the second platen roller and having eccentric trunnions; a nut having an eccentric aperture therein and mounted in the other section of the auxiliary frame; said trunnions of the latter shaft being journaled within the latter sleeve and the eccentric aperture of the nut respectively; a gear meshing with one of said intermediate gears, and the gear having the said aperture; two rotatably mounted shafts having intermeshing gear wheels thereon; a gear wheel meshing with the gear having said slot, and one of the gear wheels on the latter mentioned shafts; rollers keyed to the latter mentioned shaft and in contact to form feeding means for the paper after it is printed; means for rotating the said cylinder and the first mentioned platen roller to print and to feed a strip of paper to a point adjacent the outer surface of the second platen roller; a spring attached to the auxiliary frame and to the carriage to move the latter in a path concentric with the axis of the carriage supporting shaft and into printing engagement with the paper while the latter is against the outer surface of the second platen roller.

14. The combination of a platen roller; a type carriage; type carried by the said carriage; means for feeding a strip of paper to the platen roller; means for rotating the platen roller; resilient means for moving the type carriage in a circular path into contact with the paper while the latter is against the platen roller to form an impression; automatic means for moving the said carriage bodily away from the paper and the platen roller; and means for returning the said carriage to its normal position.

15. The combination of a platen roller; a shaft; a type carriage pivotally supported on said shaft; means for feeding a strip of paper to the platen roller; resilient means for moving the carriage into contact with the paper while the latter is in engagement with the platen roller to print an impression thereon; means for increasing the distance between the axis of the platen roller and the axis of the shaft after said impression

is made; and means for returning the carriage to its normal position.

16. The combination of a supporting structure; a platen roller adjustably mounted within the supporting structure; an eccentric shaft mounted within the supporting structure; a carriage pivotally mounted on the shaft; type carried by said carriage; means for inking the type; means for rotating said platen roller; means for feeding a strip of paper to the platen roller; means for moving the carriage into contact with the paper while the latter is on the platen roller to print an impression; said means being independent of the means for rotating the platen roller; means for raising and lowering said shaft, said means being actuated by the platen rotating means; and means for returning the carriage to its normal position, said means being actuated by the platen rotating means.

17. The combination of a supporting structure; a platen roller adjustably mounted within the supporting structure; an eccentric shaft mounted within the supporting structure; a carriage pivotally mounted on the shaft; type carried by said carriage; means for inking the type; means for rotating said platen roller; means for feeding a strip of paper to the platen roller; means for moving the carriage into contact with the paper while the latter is on the platen roller to print an impression; said latter means being independent of the means for rotating the platen roller; means for raising and lowering said shaft, said means being actuated by the platen rotating means; means for returning the carriage to its normal position, said means being actuated by the platen rotating means; and means for regulating the extent of rise and fall of the shaft.

18. The combination of a supporting structure; a platen roller; means for feeding a strip of paper against the platen roller; a swingable carriage; type carried by the carriage; two spools rotatably mounted on the carriage; a ratchet wheel on each spool; a pawl carried by the carriage; means for shifting the pawl into mesh with either of the ratchet wheels; an inked ribbon contacting with the face of the type and having its ends attached to respective spools; means for moving the carriage in contact with the paper while the latter is against the platen roller to print the impression of the type thereon; said movement of the carriage positioning the pawl to rotate either of the ratchet wheels to feed the ink ribbon over the face of the type.

19. The combination of a supporting structure; a platen roller mounted thereon; a carriage; type mounted on the carriage; two spools rotatably mounted on the carriage; a ratchet wheel on each spool; an inked ribbon covering the face of the type

and having its ends attached to respective spools; a lever pivoted on the carriage, said carriage having a slot formed therein; a spring connecting the lever and the carriage; a spring connecting the supporting structure and the lever; a double ended pawl connected to said lever, and adapted to slide in the path prescribed by said slot in the carriage; means for shifting the pawl into engagement with either of said ratchet wheels; and means for moving the carriage into contact with a strip of paper, the latter resting against the platen roller, to print the impression of the type thereon.

20. The combination of a supporting structure; a platen roller adjustably mounted thereon; a shaft having eccentric trunnions, said trunnions being journaled in said supporting structure and having a portion provided with teeth; a carriage pivotally supported on said shaft; type carried by the carriage; a band clamped on one of said trunnions; a worm journaled in said clamp band, and engaging the teeth of the trunnion; an arm on said clamp band; an antifriction roller on said arm; a cam engaging said antifriction roller; means for holding said antifriction roller against said cam; an antifriction roller on said carriage; a cam engaging said antifriction roller; means for rotating said platen roller; means for actuating said cams, said latter means being actuated by the platen roller actuating means;

and means for moving the carriage independently of said platen roller actuating means.

21. The combination of a supporting structure; a platen roller adjustably mounted thereon; a shaft having eccentric trunnions; said trunnions being journaled in said supporting structure; a carriage pivotally supported on said shaft; type carried by the carriage; means for inking the type; an arm fixed on one of said trunnions; an antifriction roller on said arm; a cam engaging said antifriction roller against said cam; an antifriction roller on said carriage; a cam engaging said antifriction roller; means for rotating said platen roller; means for actuating said cams, said latter means being actuated by the platen roller actuating means; means for moving the carriage independently of said platen roller actuating means; and buffing means to prevent the pounding of said second antifriction roller against its respective cam during the independent motion of the carriage.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HERMAN G. LIEBENTHAL.

Witnesses:

AUGUSTUS B. COPPES.
WM. A. BARR.