

W. S. EATON.  
PRINTING MACHINE.  
APPLICATION FILED OCT. 12, 1912.

1,147,152.

Patented July 20, 1915.

7 SHEETS—SHEET 1.

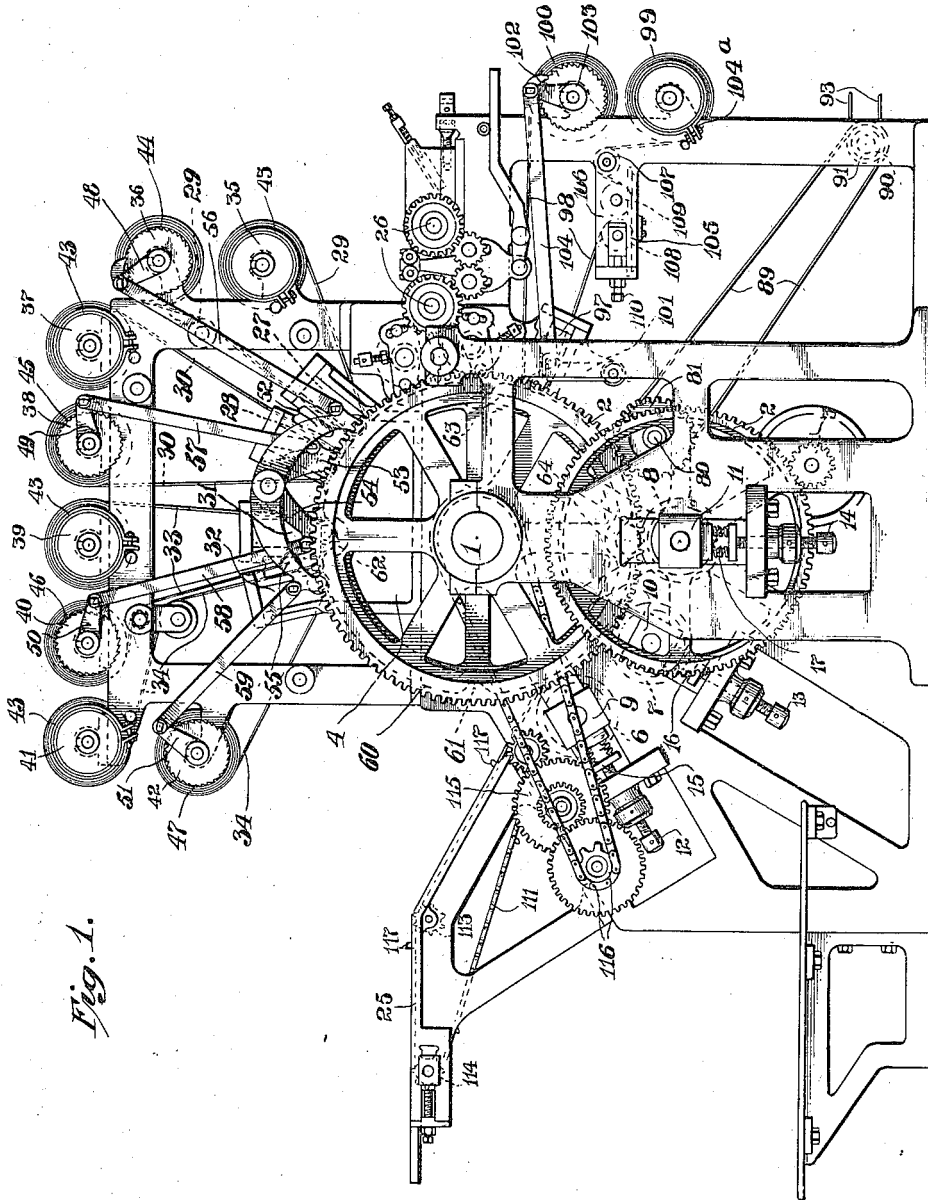


Fig. 1.

Attest:  
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*Ernest Wemyer*

William S. Eaton Inventor:  
by *Frank P. Wentworth*  
his Atty

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 7 SHEETS—SHEET 2.

Fig. 2.

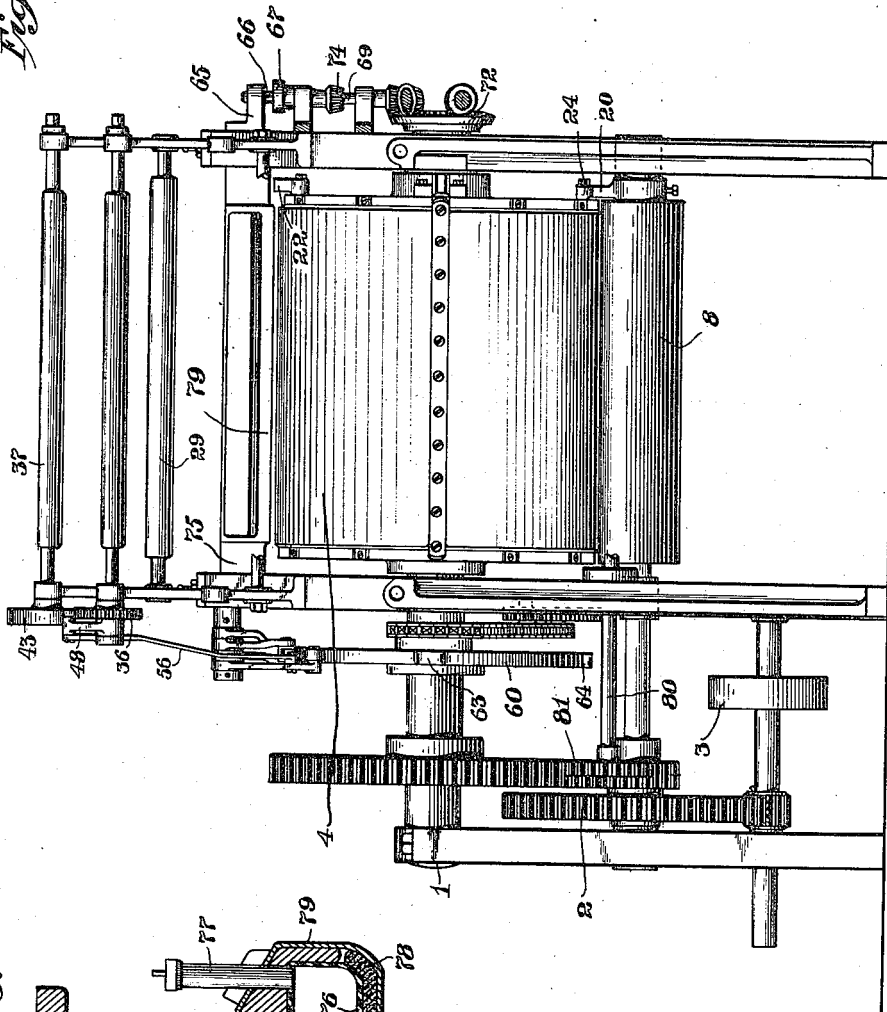
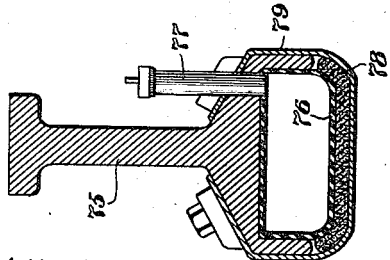


Fig. 5.



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7 SHEETS—SHEET 3.

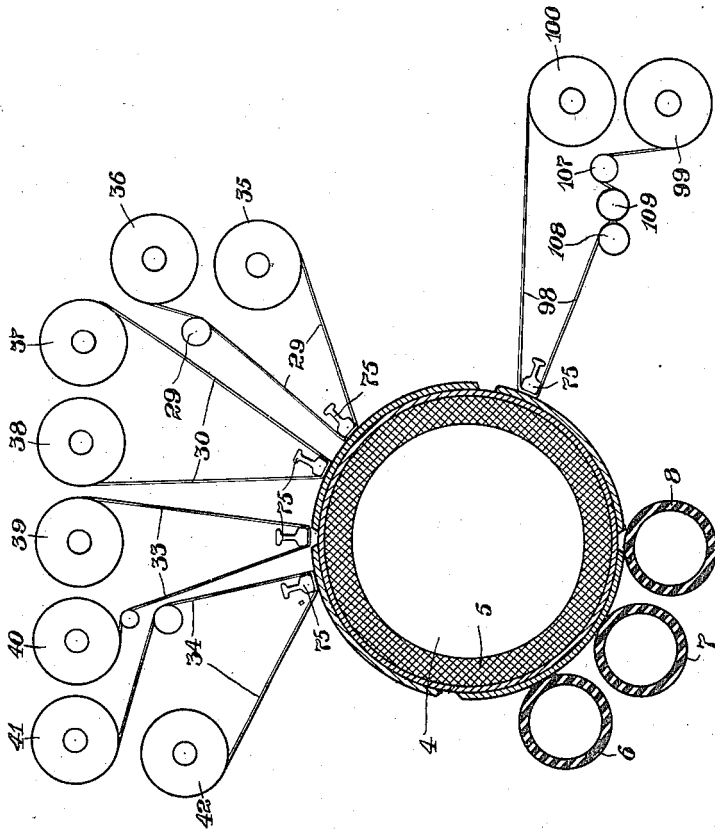


Fig. 3.

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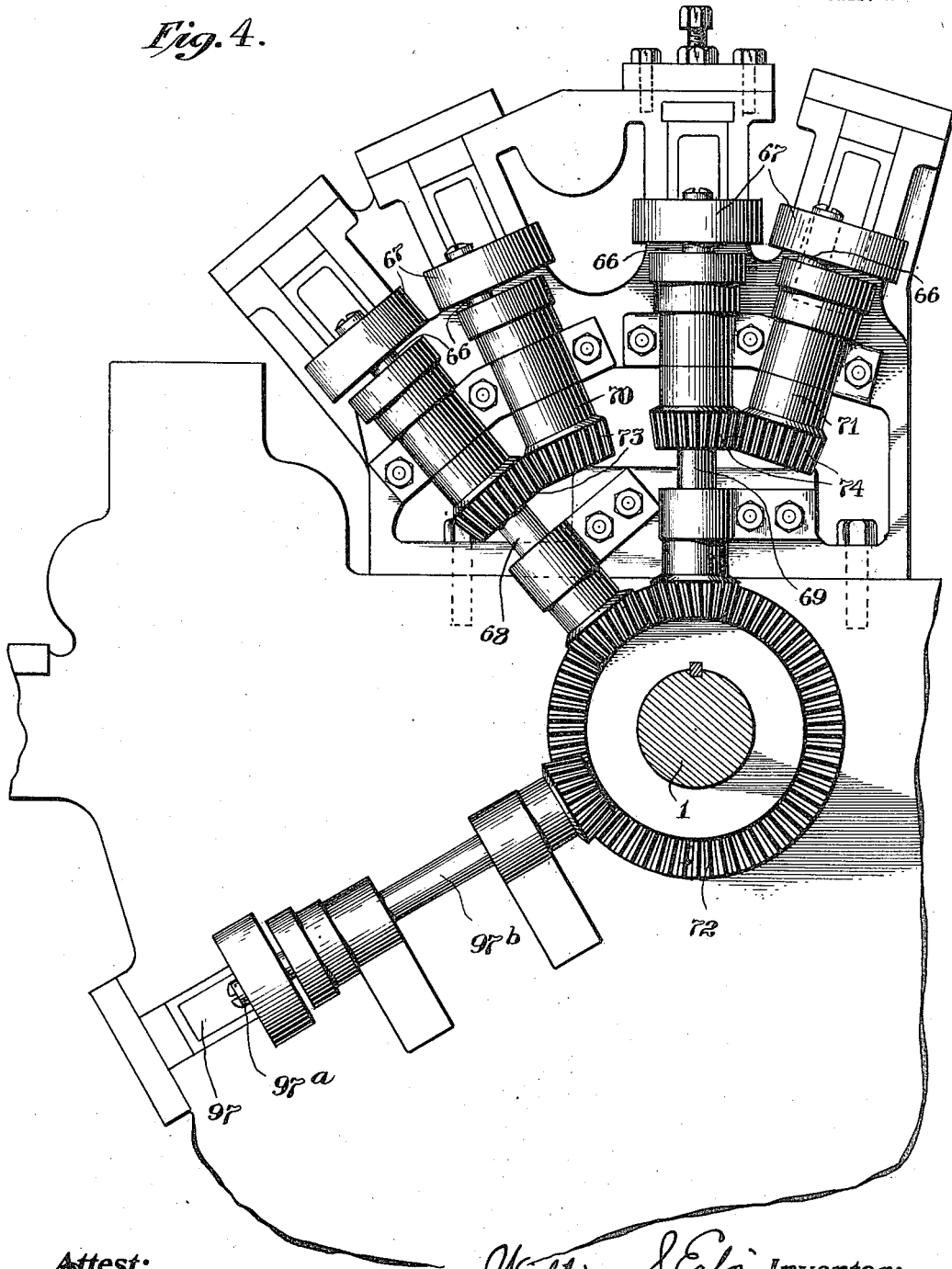
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7 SHEETS—SHEET 4.

Fig. 4.



Attest:  
*Eugene Waring*  
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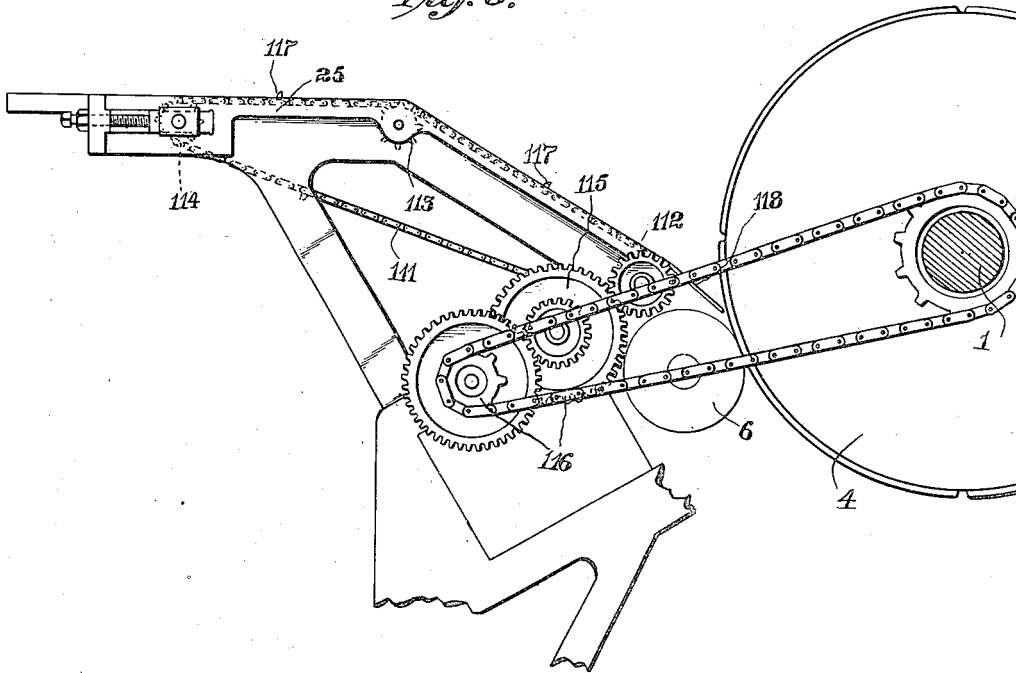
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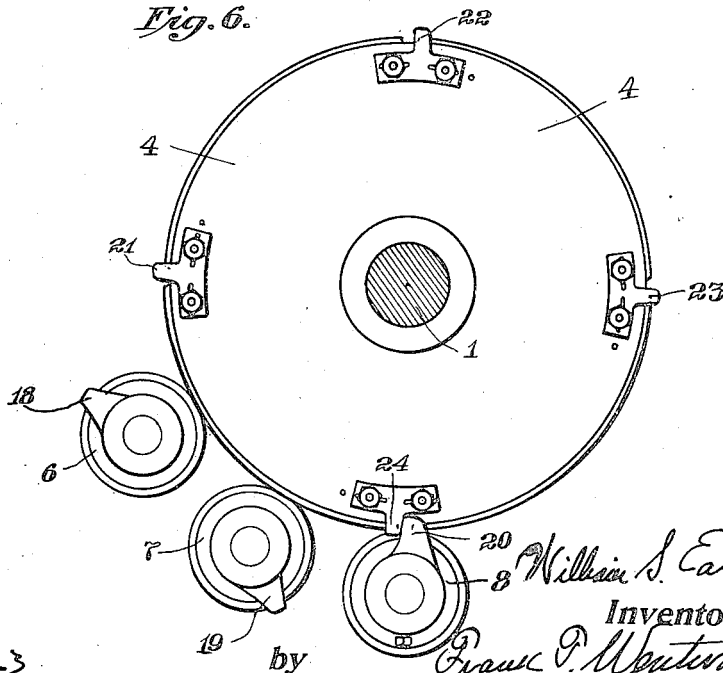
1,147,152.

Patented July 20, 1915.  
 7 SHEETS—SHEET 5.

*Fig. 8.*



*Fig. 6.*



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 Legend Wening

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 Inventor:  
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 his Atty.

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7 SHEETS—SHEET 6.

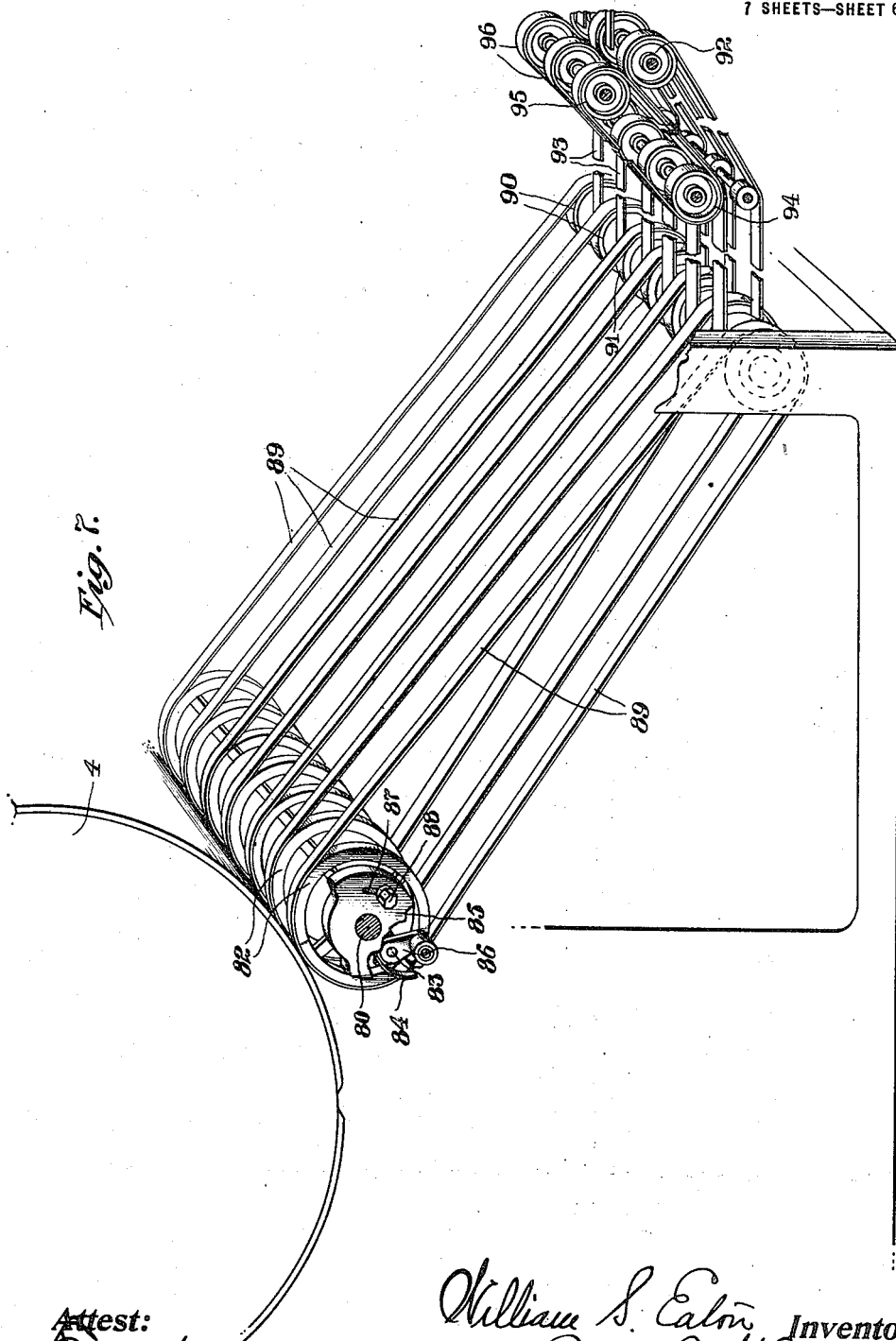


Fig. 7.

Attest:  
*Eugene W. Werning*  
Eugene Werning.

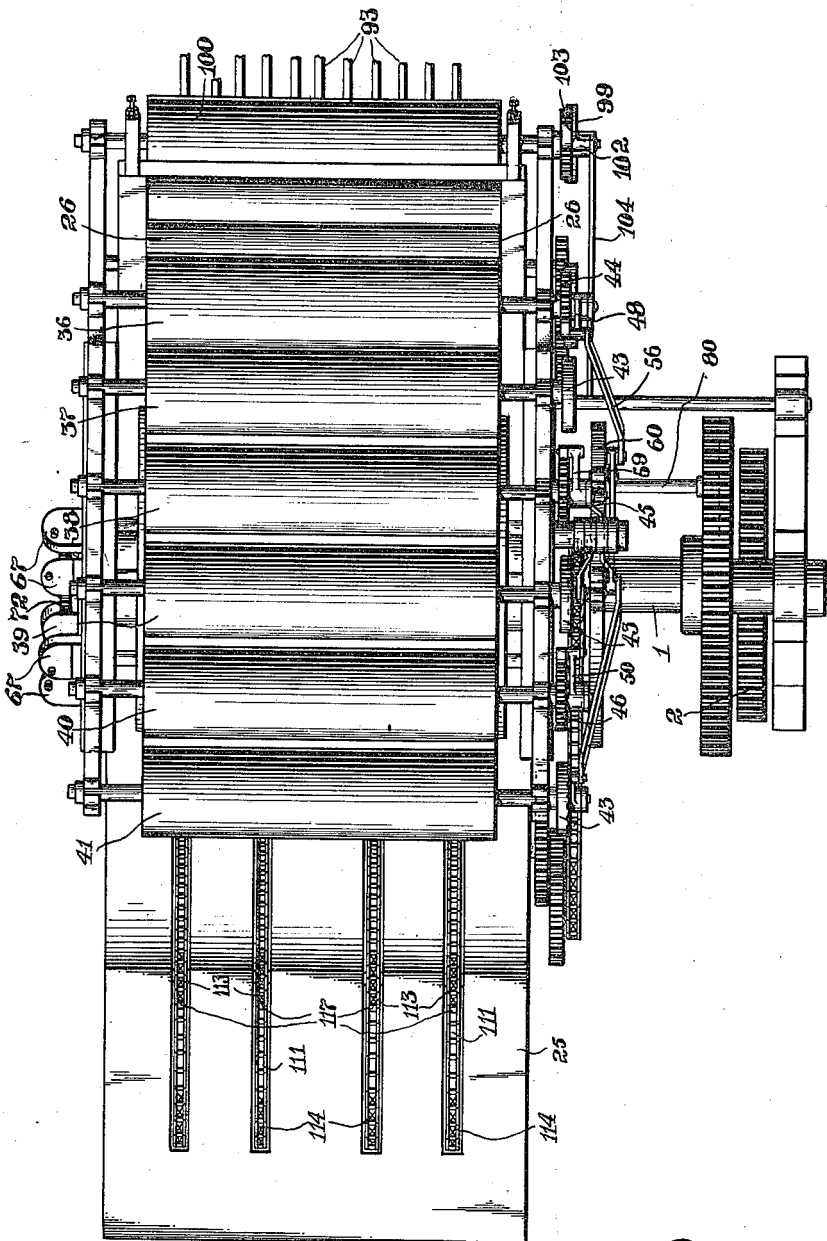
William S. Eaton Inventor;  
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 7 SHEETS—SHEET 7.

*Fig. 9.*



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# UNITED STATES PATENT OFFICE.

WILLIAM S. EATON, OF SAG HARBOR, NEW YORK, ASSIGNOR TO AMERICAN BANK NOTE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## PRINTING-MACHINE.

1,147,152.

Specification of Letters Patent.

Patented July 20, 1915.

Application filed October 12, 1912. Serial No. 725,379.

*To all whom it may concern:*

Be it known that I, WILLIAM S. EATON, a citizen of the United States, residing at Sag Harbor, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to printing machines, and more particularly to a type of machine for printing from engraved or under surface plates.

The main object of my invention is to provide a printing machine adapted for use in printing from engraved, intaglio or undersurface plates, which is adapted for use in printing upon single sheets of paper by means of a printing couple embodying therein a rotary plate cylinder having associated therewith suitable inking, wiping and polishing mechanisms, whereby all of the operations of the press, including the preparation of the plate for making the imprint, (but excluding the feeding of the paper) are entirely automatic.

A further object is to provide a machine of this character which is capable of being run at high speed and of carrying a plurality of plates so as to further increase the capacity of the press.

A still further object is to provide a press of this character wherein the plate cylinder will present a continuous surface so as to be capable of receiving plates of different dimensions, means being provided for securing a timely feeding of the wiping and polishing cloths in a manner to more thoroughly wipe and polish the plates and pack the lines therein.

A still further object is to provide in a machine of this character a printing couple wherein one of the element will be a plate cylinder and the other element a frictionally driven oppositely disposed impression cylinder adapted to be actuated by frictional engagement with the sheets of paper upon the plates, the impression cylinder being so proportioned to the plate cylinder as to insure proper relative lineal traverse of the two surfaces in a manner to preserve the proper relation between the respective plates and the impression cylinder.

A still further object is to provide in a machine of this character a plurality of suc-

cessively arranged impression cylinders adapted to exert pressure in varying degrees upon the paper passing through the press, while affording that dwell between pressures necessary to secure that absorption of the ink by the paper necessary to a perfect imprint.

A still further object is to provide in a machine of this character means whereby one or a plurality of such impression cylinders or rollers may be used, as desired.

A still further object is to provide a machine of this character embodying therein a printing couple consisting of a plate cylinder and an oppositely disposed impression cylinder adapted to be frictionally driven from the plates upon the former, wherein positively acting means are provided for initiating and maintaining the rotary movement of the impression roller till the desired frictional engagement has been secured, which construction also permits the use upon the plate cylinder of plates of different dimensions.

A still further object is to provide a machine of this character wherein the sheets are fed below the plate cylinder, the impression cylinder or cylinders supplementing the natural tendency of the dampened paper to adhere to the plate in a manner to secure the desired intimate relation of the paper with the plate until the sheet is removed from the press by the delivery mechanism.

A still further object is to provide a machine of this character wherein there will be provided damping means disposed intermediate the impression roller and the inking mechanism in order to moisten the surface of the successive plates in a manner to minimize the volume of ink deposited upon the top surface thereof by the inking rollers, and thus lend economy to the operation of the press.

A still further object is to provide in a machine of this character a feeding mechanism adapted to feed dampened sheets of paper with a rapidity commensurate with the speed of rotation of the plate cylinder, while at the same time preserving that accuracy necessary to feeding machines of this type. And a still further object is to provide a machine of this character embodying therein a plurality of independent wiping and polishing cloths and actuating means therefor whereby the feeding of the



cloth upon the separate wipers and polishers will be successively accomplished by means controlled or actuated by the plate cylinder.

The invention consists in the novel features of construction and combination of parts hereinafter set forth and described and more particularly pointed out in the claims hereto appended.

Referring to the drawings, Figure 1 is a side elevation of a machine embodying my invention; Fig. 2 is an end view of the delivery end of the machine with the inking, delivery and polishing mechanisms removed; Fig. 3 is a vertical longitudinal section of the machine, showing diagrammatically the relation of the various parts; Fig. 4 is a detail view of the mechanism for reciprocating the wipers and polishers; Fig. 5 is a detail view in cross section of the wiping and polishing pads; Fig. 6 is a detail end view of the plate cylinder and the impression cylinders, illustrating the mechanism employed for initiating the rotative movement of the impression cylinders; Fig. 7 is a detail view in perspective of the gripper mechanism for the delivery mechanism; Fig. 8 is a detail view of the feeding mechanism; and Fig. 9 is a plan view of the machine.

Like numerals refer to like parts through the several views.

In the embodiment of my invention shown in the drawings, 1 indicates the main shaft of the machine which is continuously rotated by means of the gear train 2, receiving power through the pulley 3.

Each machine being preferably driven by an independent motor, no means for throwing the power on and off are shown, an electric switch being commonly used for this purpose in motor driven machines.

Mounted upon and rotatable with the shaft 1 is the plate cylinder 4, which may be heated in any desired manner as by the electrical resistance device indicated at 5 in Fig. 3 of the drawings. The plate cylinder 4 comprises one element of a printing couple and is of a diameter of sufficiently great to permit the mounting of a plurality of plates thereon, the adjacent edges of the plates being sufficiently close together to present a substantially continuous surface about the cylinder when the machine is in operation.

Owing, however, to a necessary variance in the sizes of different plates used upon the machine, it is not always possible to preserve this continuity of surface, and I therefore provide means for adapting the machine to plates of different sizes, thus compensating for any interruption in the printing surface of the plates. Coöperating with the plate cylinder 4 is a plurality of rotary impression cylinders 6, 7 and 8, which are adapted to be frictionally driven from the said plate cylinder, or by engagement with the plates and

paper carried thereby and being fed thereto. If desired, these impression cylinders may be so adjusted as to make one or more of them operative, as desired, the shafts carrying said rollers being respectively mounted in the journal housings 9, 10 and 11, and these housings in each case being adjustable toward and from the cylinder 4 by means of the adjustment screws 12, 13 and 14. Arranged between the screws 12, 13 and 14 and the housings 9, 10 and 11 are the springs 15, 16 and 17 through the tension of which the desired pressure of the impression rollers is secured. Each cylinder 6, 7 and 8 is provided with a continuous flexible jacket preferably of vulcanized rubber, which has the advantages of being capable of being applied to the roller in a manner to form a continuous surface; of being turned down so as to present a true surface; and of yielding sufficiently to form that offset upon the impression rollers which is desirable to secure a satisfactory imprint from an engraved, intaglio or undersurface plate. These impression cylinders 6, 7 and 8 are spaced apart sufficiently to afford a dwell of the paper upon the plates after each pressure has been applied by an impression roller, and the adjustment screws 12, 13 and 14 permit such an adjustment of the respective rollers that this pressure may be increased with the succeeding rollers so as to subject the paper in its progress through the machine to successively increased pressures to secure a more intimate contact of the paper with the ink secreted within the lines of the plate.

The rollers 6, 7 and 8 being arranged below the cylinder 4, these rollers also serve to eliminate any tendency of the paper to leave the plate through gravity, although I have found that after the action of one impression roller, the adhesion of the paper to the nonprinting surface of the plate is sufficient to prevent any possibility of such a separation of the paper from the plates.

The pressure developed between the plates upon the cylinder 4 and the impression rollers is fairly great, so that the desired frictional contact of the impression rollers with the plate for the purpose of driving these rollers frictionally from the plate cylinder is always present so long as there is substantial continuity of the plate surface about the periphery of the said cylinder 4. If, however, the number of plates used upon this cylinder is insufficient to cover the entire surface thereof, or if four plates are used, and these plates are of dimensions insufficient to cover the entire surface of the cylinder, the frictional engagement of the impression rollers with these plates will not be continuous, and means must be provided whereby in case of the interruption of the friction surface upon the cylinder, the im-

pression rollers will receive an initial impulse sufficient to rotate them to an extent to cause the peripheral traverse of these cylinders to always be commensurate with that of the main cylinder.

In the form of the invention shown in the drawings, the diameter of the cylinder 4 and the impression rollers 6, 7 and 8 is as 4 to 1, so that with each rotation of the plate cylinder, it is necessary to rotate the cylinders 6, 7 and 8 four times, or one complete revolution to each plate upon the cylinder. If these conditions are not preserved, the cylinders 6, 7 and 8, or any of them, in case of the use of a plate of an arc less than 90 degrees, is only turned a portion of a revolution and hence there would be a loss of register with each plate upon succeeding revolutions. This would prevent the formation of that offset upon the jacket of the impression cylinders which is desirable in printing from engraved plates. This offset is very minute under any conditions and can be secured only by repeated contact of the jacket or blanket upon the impression cylinder with the plate, and a preservation of perfect register between the two. The means for securing this register between the impression rollers and the plates upon the cylinder 4 comprises tappets 18, 19 and 20 carried respectively by the rollers 6, 7 and 8, and corresponding tappets 21, 22, 23, and 24 spaced 90 degrees apart upon one end of the cylinder 4. The last named tappets are made adjustable circumferentially about the cylinder 4, so as to afford a considerable range in the sizes of the plates which may be used upon this cylinder and are made detachable so that if desired the use of the starters for the impression cylinders may be dispensed with entirely.

The adjusting screws 12, 13 and 14 are set radially of the plate cylinder 4, in order to cause the pressure exerted by the springs 15, 16 and 17 to act radially of said cylinder and avoid any tendency of this pressure to strip the paper from the plate.

Upon one side of the plate cylinder 4 is a feeding shelf 25, the detailed construction of which will be more fully described hereinafter, and upon the opposite side of said cylinder is an inking mechanism 26, which may be of any well known or approved construction, the detailed construction of this inking mechanism 26 being immaterial to my invention. The impression rollers 6, 7 and 8 are intermediate said feeding shelf and said inking mechanism, the cylinder 4 turning away from said shelf toward said mechanism. Intermediate said inking mechanism and said feeding shelf, in relation to prepare the plate for printing after the application of ink thereto, are the wiping pads 27 and 28 about which pass the wiping cloths 29 and 30 and the polishing pads 31 and 32

about which pass the polishing cloths 33 and 34. Each wiping and each polishing pad has associated therewith two reels, one of which is adapted to retain a roll of wiping or polishing cloth, and the other of which is adapted to be actuated to rewind this cloth by gradual, intermittent steps so as to constantly bring fresh portions of the cloths into position upon their pads so as to not only thoroughly wipe and polish the plate, but also to cause a portion of the wiping cloth upon each pad to be saturated with the ink in a degree to thoroughly pack into the intaglio or engraved lines of the plate. The cloth reel and the rewinding reel associated with the pad 27 are indicated by the numerals 35 and 36; those associated with the pad 28 by the numerals 37 and 38; those associated with the pad 31 by the numerals 39 and 40; and those associated with the pad 32 by the numerals 41 and 42.

Each of the reels 35, 37, 39 and 41 is provided with a similar friction brake 43 adapted to retard the movement of the reel in a manner to insure the cloth being drawn taut about the pad. The intermittent feeding movement of the reels 36, 38, 40 and 42 is accomplished by providing said reels respectively with ratchet wheels 44, 45, 46 and 47, which are respectively adapted to be actuated by means of an oscillatory arm 48, 49, 50 and 51 mounted adjacent thereto and carrying a pawl adapted to engage said ratchet. Said oscillatory arms are respectively actuated by means of the rocker arms 52, 53, 54 and 55 and link connections 56, 57, 58 and 59.

Mounted upon the shaft of the plate cylinder 4 is a cam disk 60 having therein four falls 61, 62, 63 and 64, adapted to actuate each of the rocker arms 56 to 59 inclusive four times with each rotation of the plate cylinder 4. The falls 61 to 64 are arranged about the space between adjacent plates upon the said plate cylinder so that the shifting of the cloths will be accomplished at an interval when they will be disengaged from the surface of the plates.

By this construction the desired minute feeding of the various cloths is accomplished successively and in a timely manner, this construction permitting the association of the desired number of cloths disposed about the circumference of the main cylinder, and a shifting of the cloths while disengaged from the plates.

To avoid any possibility of the streaking of a plate, I impart to each of the pads 27, 28, 31 and 32 a lateral reciprocatory movement, by means of the mechanism which I will now describe. Each of said pads is provided with an extension 65 adapted to be engaged by an eccentric pin 66 mounted upon a disk 67. There are four of said disks mounted upon shafts 68, 69, 70 and 71 re-

spectively, the first two of which shafts are driven from the beveled gear 72 upon the shaft of the plate cylinder 4, by means of the beveled gears carried by said shafts, and the latter two of which shafts are driven from the said first two shafts by means of the intermeshing gears 73 and 74 respectively. This construction is made necessary in order to permit the said pads to be properly spaced about the circumference of said cylinder 4. The pins 66 are so set upon their disks that the pads actuated thereby respectively receive dissimilar movement to further guard against possibility of streaking the plate.

Each of the pads 27, 28, 31 and 32 is similar in construction to every other, and a detailed description of but one of them will therefore be given. Each of said pads comprises a rigid head 75 having a recess in the lower face thereof. Seated within said recess is an expansible, hollow, flexible, rubber cushion 76 adapted to be distended under air pressure through the valve 77. Protecting the lower face of this cushion is a flexible facing 78 preferably of felt, and inclosing the whole is a leather facing 79 adapted to resist wear upon the pad. By this construction the requisite pressure upon the plates may be secured by merely inflating the cushions 76. If desired any pad may be rendered inoperative by deflating any of these cushions. The leather facing also permits the wiping or polishing cloths to slide freely over the face of the pad.

Beyond the impression roller 8 is the delivery mechanism, which consists of a shaft 80 driven by means of the gear 81 meshing with the gear of the gear train 2 which drives the main shaft 1. Mounted upon this shaft 80 is a plurality of pulleys 82, spaced apart to any desired extent to accommodate the delivery mechanism to sheets of different dimensions. Mounted in and extending through all of the pulleys 82 is an oscillatory rod 83 carrying the spring metal fingers 84. By means of the rod 83 all of these fingers may be actuated in unison, so as to strip all portions of the sheet from the plate at the same time. The actuating means for the rod 83 is a nonrotary cam 85 mounted adjacent to the frame of the machine and a crank arm 86 carried by the rod 83 and bearing upon said cam. To permit that adjustment necessary to vary the timing of the action of the fingers 84, to adapt this mechanism to the delivery of sheets of different sizes, I provide the cam 86 with a segmental slot 87 through which passes a clamp screw 88.

Leading from the pulleys 82 are the conveyor belts 89 passing about the pulleys 90 spaced away from the main cylinder 4. Upon the same shaft as the pulleys 90 are the pulleys 91 about which and the pulleys

92 pass the belts 93 which extend horizontally for a short distance and are then directed upwardly so as to cause a delivery of the sheets of paper at a point convenient to the inspector. The pulleys 94 and 95 and belts 96 serve to confine the sheets while passing up the inclined belts 93. By this construction the printed sheets are delivered to the inspector with the fresh imprint upward, so as to make it convenient to examine each sheet after it has left the press. Beyond the delivery mechanism and between it and the inking mechanism is a damping pad, the function of which is to apply a thin film of moisture to the upper or nonprinting surface of the plate in a manner to destroy as much as possible, any affinity which the plate may have for the ink. The residue of ink in the intaglio or engraved lines will resist the action of this damping mechanism so that the application of the moisture will be limited to the nonprinting surface of the plate. It will be observed that this moistening of the plate occurs while the non-printing surface thereof is free of ink, and I have found in actual practice that by the use of a damping mechanism of this character in machines for printing from intaglio, engraved or undersurface plates, a very large saving of ink is effected.

The moistening mechanism above referred to comprises a pad 97 constructed similarly to the wiping and polishing pads 27, 28, 31 and 32, and is oscillated by the disk 97<sup>a</sup> driven by the shaft 97<sup>b</sup> carrying a gear meshing with the gear 72. About this pad passes the moistening cloth 98 drawn from the reel 99 through a moistening bath, which will be hereinafter more fully described, and rewound upon the reel 100. Actuating the reel 100 is an oscillatory arm 101 bearing upon the cam 60, and an oscillatory arm 102 carrying a pawl cooperating with the ratchet wheel 103 carried by the rewinding reel 100, a link 104 connecting said oscillatory arms. By this construction, the moistening cloth is advanced with a step by step movement, the feeding movement of this cloth occurring at a time when it is disengaged from the plates in the same manner as the wiping and polishing cloths.

The reel 99 is provided with a friction brake 104<sup>a</sup> for securing the desired drag upon the moistening cloth to hold it taut.

Disposed between the reel 99 and the moistening pad 97 is a damping bath 105, comprising the tank 106, the guide roller 107 and the rollers 108 and 109 expressing the excess moisture from the moistening cloth. The roller 108 is provided with adjusting means 110 whereby the degree of saturation of the moistening cloth may be controlled.

Owing to the difficulty encountered in feeding dampened sheets of paper between

the impression roller 6 and the plate cylinder 4, and the impossibility of feeding them in the same manner as dry sheets are fed, I provide the feed shelf 25 with means for automatically conveying the sheets one at a time to a point where they will be delivered to the said cylinder and impression roller. This mechanism comprises a plurality of sprocket chains 111, each of which chains passes about sprockets 112 113 and 114 mounted below and projecting through the shelf 25 to an extent to bring these chains 111 substantially flush with the horizontal and downwardly inclined plates of said feed shelf, channels being provided in said shelf to accommodate said chains. The sprockets 113 and 114 run idly, but the sprocket wheel 112 is power driven from the main shaft 1, by means of the gear train 115 and the chain and sprocket connection 116.

Owing to the desirability of employing a small sprocket wheel upon the main shaft 1, it is necessary to gear up the transmission system between this sprocket and the sprocket 112 so as to cause the traverse of the said chains 111 to coincide with the peripheral traverse of the main cylinder 4. This is due to the fact that four sheets of paper must be delivered with each rotation of the said cylinder in order to maintain the desired output capacity of the press.

In the form of the invention shown in the drawings, the sprocket wheel upon the shaft 1 which forms a part of the driving connection 116 is one fourth the diameter of the cylinder 4, and hence the gear train driving the sprocket 112 is so designed as to impart four revolutions to said sprocket 112 to one of the shaft 1.

Carried by each conveying chain 111 is a plurality of projections 117, spaced apart sufficiently to permit sheets of paper to be fed in advance of same. Projecting at an angle downwardly from the lower edge of the inclined portion of the feed shelf 25 is a metallic ledge 118 which is adapted to support the forward edge of the paper to a point where it is in position to enter between the plate cylinder 4 and the impression roller 6.

The operation of the herein described printing machine is substantially as follows:—The cylinder 4 may have from one to four plates mounted thereon as desired, these plates being securely positioned in the usual and well known manner, and being heated by the electric resistance coils 5, or other heating means. When the plates have been so mounted, power is applied to the shaft 1 through the transmission gearing 2, to rotate the cylinder 4 toward the feed shelf 25. As each plate passes the inking mechanism 26, it receives ink, and then passes to the wipers 27 and 28, the cloths 29 and 30 passing about which, are partially filled with

the ink so as to prevent such excessive absorption of ink by the cloths as to remove ink from the intaglio or engraved lines, and causes these wiping cloths to pack the ink in the lines in the usual and well known manner. From the wipers 27 and 28 each plate passes to the polishers 31 and 32, the cloths 33 and 34 passing about which, act only upon the upper surface of the plate to remove any ink which may be left upon this upper surface by the wipers. The reciprocatory movement of the wipers and polishers prevents streaking of the plate and accomplishes a more thorough wiping and polishing thereof. After leaving the polishers, each plate advances toward the impression roller 6, between which and the plate upon the cylinder 4, a sheet of previously dampened paper is fed by the feeding mechanism, one sheet at a time in a manner which will be more fully described hereinafter. The falls 61 to 64 inclusive on the cam 60, being arranged intermediate adjacent plates upon the cylinder 4, will at the completion of the operative moment of each of the wipers 27 and 28 and each of the polishers 31 and 32, actuate the levers 52, 53, 54 and 55 in sequence, to slightly advance the wiping cloths 29 30 and polishing cloths 33 and 34 so as to bring that portion of each of these cloths which has been most soiled to a position where it will not engage the plates, and present to each plate a small area of unsoiled or clean wiping or polishing cloth. By the arrangement of cams and levers shown this feeding movement is timed accurately as to each plate so that the feeding of the cloths is accomplished while the wipers and polishers are disengaged from a plate, the entire feeding movement being completed prior to the engagement with succeeding plates.

The brake bands 43 insure the cloths being held perfectly tight across the wipers and polishers. The inking, wiping and polishing mechanisms prepare the plate for the printing operation, and by the construction described, this preparation is accomplished by entirely automatic means. The impression rollers 6, 7 and 8, presenting as they do, a continuous impression surface, will rotate continuously through frictional engagement with the plates upon the cylinder 4, except for that slight distance intervening between adjacent plates, during which interval, when plates of the maximum size are used, the momentum of the impression cylinder will be sufficient to cause it to accurately register with succeeding plates. In other words, each impression cylinder 6, 7 and 8 will complete four revolutions to one of the cylinder 4, thus causing each impression cylinder to accurately register with each of the plates upon said cylinder. While I prefer to use a plurality of impression rollers, all but one of them may be rendered

inoperative if desired, or the pressure exerted thereby may be made so slight as to cause these rollers to serve merely as retaining rollers for the sheet of paper upon which the imprint is being made. When the three rollers are used, the roller 6 should be so set as to exert slight pressure only upon the paper, this pressure being sufficient to cause the paper to adhere to the plate and to enter the intaglio or engraved lines but slightly in order to permit the ink to get a good bite upon the paper. The slight dwell between the rollers 6 and 7 will give the ink an opportunity to enter the fibers of the paper prior to the subjection of the paper to pressure from the roller 7, which pressure will be in excess of that exerted by the roller 6. Between the rollers 7 and 8 another dwell occurs before the application of the greatest pressure by the roller 8, so that each sheet in passing through the press receives three separate and distinct pressures of gradually increased degrees of force, with a dwell after each pressure. When plates of less than the maximum size are used upon the cylinder 4, the tappets 21 to 24 and 18 to 20 are relied upon to continue the rotation of the rollers 6 to 8 during the interval between the disengagement of these rollers from one plate and their engagement with the succeeding plate, thus insuring the proper relative peripheral traverse of the cylinder 4 and the cylinders 6, 7 and 8. If desired, the cooperating tappets upon the cylinder 4 and the rollers 6, 7 and 8 may be used at all times to insure the positive rotary movement of each impression roller. The tappets 21 to 24 are adjustable circumferentially of the cylinder 4, to advance the initial operative moment of the tappets 21 to 24 to compensate for an increase of space between succeeding plates upon said cylinder 4. The impression rollers 6, 7 and 8 are always frictionally driven when in engagement with the plate, and the cooperating tappets above referred to are designed primarily to insure the exact register of each impression roller with each plate upon each engagement of the roller with the plate. This result is desirable as the design of the plate, in steel plate engraving, becomes more or less offset upon the blanket or flexible cover of the impression roller, thus presenting a reproduction of this design in relief upon the blanket or cover. Of course, this reproduction is not perfect in any way, but the cameo lines upon the impression roller, however slight, have a tendency to enter the depressions or intaglio lines of the plate and thus secure a more perfect imprint therewith. By having the impression rollers rotate substantially continuously in one direction, high capacity of the machine is possible, the springs 15, 16 and 17 permitting the adjustment of the pressure and at the same time

affording a yielding contact of the rollers with the plates which is desirable.

The operation of the collecting or delivery mechanism has been fully set forth above, and a further description thereof is therefore unnecessary. As each plate has the sheet of paper stripped therefrom by the delivery mechanism, it passes into engagement with the damping mechanism from the cloth 98, of which the non-printing surface thereof receives a thin film of water, or other ink repellent fluid, the vehicle of the ink contained in the lines of the plate preventing the deposition within these printing lines. As each plate leaves the damping mechanism, the damping cloth 98 is advanced so as to bring a freshly moistened portion of this moistening cloth across the damping platen 97, the falls 61 to 64 of the cam 60, actuating the pawl and ratchet mechanism 102 103 to accomplish this feeding movement. The damping mechanism being operative closely adjacent to the inking mechanism prior to the engagement of each plate therewith, the oil resisting film upon the surface of each plate will tend to prevent the depositing of the ink upon the non-printing surface. Notwithstanding this, however, there is apt to be a small quantity of ink upon different portions of the surface of the plate, and hence the wiping mechanism is necessary. The polishing mechanism is necessary under all conditions to avoid the necessity for hand finishing of the plates, which is ordinarily the practice in connection with flat plates. The wipers also serve to remove the film of moisture from the non-printing surface, whether or not there is ink upon this surface.

The sheets of paper being fed to the cylinder 4 and impression roller 6, being dampened, these sheets cannot be fed as in ordinary rotary presses, and as there are four closely adjacent plates upon said cylinder 4, I provide mechanical means accomplishing the timely delivery of a sheet to each plate upon said cylinder 4. The feeding means shown and described make it convenient for the feeder, and at the same time insure the holding of the sheet perfectly flat and the positioning of the forward edge thereof between a plate upon said cylinder 4 and the feeding roller 6 as said plate approaches the impression roller. In feeding, the operator places a sheet upon the table 26 over the chain 111 in position where said sheet will be engaged by the projections 117 thereon with the continued movement of this chain. These projections are spaced apart for a distance equaling substantially one fourth of the circumference of the cylinder 4. After the operator has placed the sheet upon the table, the projections accomplish the advancement of the sheets until the forward edge thereof has passed over the plate

118 and is in position to be engaged between the impression roller 6 and a plate upon the cylinder 4. The driving mechanism for the said chain 111 is so proportioned as to cause the traverse of the said chains to coincide with the peripheral traverse of the cylinder 4. This arrangement not only permits the sheets to be fed one at a time with the forward edge parallel with the axis of the cylinder 4, or perfectly straight, but affords the feeder sufficient time to properly position the sheet relative to the projections 117 and to straighten out the sheet if necessary.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that the essential characteristics of said machine may be embodied in a machine differing in design from that shown; nor is it my intention to limit myself to the use of a plurality of impression rollers, as two of said rollers may, by the adjustment means shown in the drawings, be readily made inoperative without rendering the machine in its entirety inoperative.

Having described my invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said cylinder, and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

2. A printing machine embodying therein a printing couple including a rotary plate cylinder adapted to receive a plurality of intaglio, engraved, or undersurface printing plates, and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate

cylinder and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a wiping cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said plate cylinder and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

3. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a wiping cloth about said platen after application to said plate, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a polishing cloth about said platen after application to said plate, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said cylinder, and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

4. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, means being provided for imparting an initial impulse to said impression cylinder to insure the engagement thereof in proper register with the plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens

and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said cylinder and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

5. A printing machine embodying therein a printing couple including a rotary plate cylinder adapted to receive a plurality of intaglio, engraved or undersurface printing plates, and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, said impression cylinder having a smaller radius than said plate cylinder, and means being provided adjacent each plate upon said plate cylinder for imparting an initial impulse to said impression roller substantially simultaneously with the engagement of each plate upon said cylinder with said impression cylinder, whereby said impression cylinder is maintained in register with each of said plates upon said plate cylinder, a wiping and a polishing mechanism adapted to act upon the plates upon said plate cylinder, means whereby a dampened sheet of paper may be fed between each plate on said plate cylinder and said impression cylinder, and a delivery mechanism adapted to strip said sheet of paper from each plate upon said cylinder and remove it from the machine.

6. A printing machine embodying therein a printing couple including a rotary plate cylinder adapted to receive a plurality of intaglio, engraved or undersurface printing plates, and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, said impression cylinder having a smaller radius than said plate cylinder, and means being provided adjacent each plate upon said plate cylinder for imparting an initial impulse to said impression cylinder substantially simultaneously with the engagement of each plate upon said cylinder with said impression cylinder, whereby said impression cylinder is maintained in register with each of said plates upon said plate cylinder, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and

said impression cylinder, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder, and remove it from the machine.

7. A printing machine embodying therein a printing couple including a rotary plate cylinder having a substantially continuous surface whereby a plurality of closely adjacent plates may be mounted thereon and adapted to receive a plurality of intaglio, engraved or undersurface printing plates, and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, said impression cylinder having a smaller radius than said plate cylinder, and means being provided adjacent each plate upon said plate cylinder for imparting an initial impulse to said impression roller substantially simultaneously with the engagement of each plate upon said cylinder with said impression cylinder, whereby said impression cylinder is maintained in register with each of said plates upon said plate cylinder, a wiping and polishing mechanism adapted to act upon the plates upon said plate cylinder, means whereby a dampened sheet of paper may be fed between each plate on said plate cylinder and said impression cylinder, and a delivery mechanism adapted to strip said sheet of paper from each plate upon said cylinder and remove it from the machine.

8. A printing machine embodying therein a printing couple including a rotary plate cylinder having a substantially continuous surface whereby a plurality of closely adjacent plates may be mounted thereon and adapted to receive a plurality of intaglio, engraved or undersurface printing plates, and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, said impression cylinder having a smaller radius than said plate cylinder, and means being provided adjacent each plate upon said plate cylinder for imparting an initial impulse to said impression roller substantially simultaneously with the engagement of each plate upon said cylinder with said impression cylinder, whereby said impression cylinder is maintained in register with each of said plates upon said plate cylinder, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and

said impression cylinder, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder, and remove it from the machine.

5 9. A printing machine embodying there-  
in a printing couple including a rotary plate  
cylinder and a rotary impression cylinder  
adapted to be frictionally driven through  
engagement with a plate upon said plate  
10 cylinder, a tappet carried by said plate cyl-  
inder adjacent to the forward edge of the  
plate, a cooperating tappet carried by said  
impression cylinder, whereby an initial im-  
pulse may be imparted to said impression  
15 cylinder to insure the engagement thereof  
in proper register with the plate upon said  
plate cylinder, an inking mechanism, a wip-  
ing mechanism including therein a platen  
adapted to bear toward a plate upon said  
20 plate cylinder and means intermittently  
feeding a wiping cloth about said platen, a  
polishing mechanism including therein a  
platen adapted to bear toward a plate upon  
said plate cylinder and means intermittently  
25 feeding a polishing cloth about said platen,  
whereby said wiping and polishing cloths  
respectively are interposed between their  
platens and the plate upon the cylinder,  
means whereby a dampened sheet of paper  
30 may be fed between said plate cylinder and  
said impression cylinder, and a delivery  
mechanism adapted to strip said sheet of  
paper from a plate upon said cylinder, and  
remove it from the machine.

35 10. A printing machine embodying there-  
in a printing couple including a rotary plate  
cylinder and a rotary impression cylinder  
having an endless flexible surface and adapt-  
ed to be substantially continuously rotated  
40 and to be frictionally driven through en-  
gagement with a plate upon said plate cyl-  
inder, an inking mechanism, a wiping mech-  
anism including therein a plate adapted to  
bear toward a plate upon said plate cylinder  
45 and means intermittently feeding a wiping  
cloth about said platen, a polishing mecha-  
nism including therein a platen adapted to  
bear toward a plate upon said plate cylinder  
and means intermittently feeding a polish-  
50 ing cloth about said platen, whereby said  
wiping and polishing cloths respectively are  
interposed between their platens and the  
plate upon the cylinder, and means whereby  
a dampened sheet of paper may be fed be-  
55 tween said plate cylinder and said impres-  
sion cylinder, and a delivery mechanism  
adapted to strip said sheet of paper from a  
plate upon said cylinder and remove it from  
the machine.

60 11. A printing machine embodying there-  
in a printing couple including a rotary plate  
cylinder and impression means adapted to  
exert successive pressures upon the plate  
65 through the paper, a dwell being afforded  
after each exertion of pressure, adapted to

be frictionally driven through engagement  
with a plate upon said plate cylinder, an  
inking mechanism, means adapted to wipe  
and polish a plate upon said plate cylinder,  
means whereby a dampened sheet of paper  
70 may be fed between said plate cylinder and  
said impression cylinder, and a delivery  
mechanism adapted to strip said sheet of pa-  
per from a plate upon said cylinder, and re-  
move it from the machine.

75 12. A printing machine embodying there-  
in a printing couple including a rotary plate  
cylinder and a plurality of rotary impres-  
sion cylinders acting successively to exert  
pressure upon a plate carried by said plate  
80 cylinder, said cylinders being spaced apart  
to afford a dwell after each application of  
pressure upon the plate, an inking mecha-  
nism, means adapted to wipe and polish a  
plate upon said plate cylinder, means where-  
85 by a dampened sheet of paper may be fed  
between said plate cylinder and said im-  
pression cylinders, and a delivery mechanism  
adapted to strip said sheet of paper from a  
plate upon said cylinder, and remove it from  
90 the machine.

95 13. A printing machine embodying there-  
in a printing couple including a rotary plate  
cylinder and a plurality of rotary impres-  
sion cylinders acting successively to exert  
pressure upon a plate carried by said plate  
cylinder, said cylinders being spaced apart  
to afford a dwell after each application of  
pressure upon the plate, means whereby each  
100 of said impression cylinders may be adjusted  
to regulate the pressure exerted thereby, an  
inking mechanism, means adapted to wipe  
and polish a plate upon said plate cylinder,  
means whereby a dampened sheet of paper  
105 may be fed between said plate cylinder and  
said impression cylinders, and a delivery  
mechanism adapted to strip said sheet of  
paper from a plate upon said cylinder and  
remove it from the machine.

110 14. A printing machine embodying there-  
in a printing couple including a rotary plate  
cylinder and a plurality of rotary impres-  
sion cylinders acting successively to exert  
pressure upon a plate carried by said plate  
115 cylinder, said cylinders being spaced apart  
to afford a dwell after each application of  
pressure upon the plate, springs acting on  
each of said impression cylinders, and means  
varying the tension of said springs respec-  
120 tively whereby the pressure exerted by each  
of said springs may be regulated, and one  
or more of said impression cylinders may, if  
desired, be rendered inoperative.

125 15. A printing machine embodying there-  
in a printing couple including a rotary plate  
cylinder and a rotary impression cylinder  
adapted to be frictionally driven through  
engagement with a plate upon said plate  
130 cylinder, means being provided for impart-  
ing an initial impulse to said impression



cylinder to insure the engagement thereof in proper register with the plate upon said plate cylinder, an inking mechanism, means adapted to wipe and polish a plate on said plate cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism embodying there-  
 5 in means adapted to strip said sheet of paper from a plate upon said cylinder and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

16. A printing machine embodying there-  
 15 in a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, means being provided for imparting an initial impulse to said impression cylinder to insure the engagement thereof in proper register with the plate upon said plate cylinder, said means being adjustable whereby the interval of said initial impulse  
 25 may be varied to adapt the machine to plates differing in length, an inking mechanism, means adapted to wipe and polish a plate upon said plate cylinder, means whereby a dampened sheet of paper may be fed  
 30 between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said cylinder and a conveyer mechanism adapted to  
 35 receive a sheet of paper from said stripping means and remove it from the machine.

17. A printing machine embodying there-  
 40 in a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, a tappet carried by said plate cylinder adjacent the forward edge of the plate, a cooperating tappet carried by said im-  
 45 pression cylinder whereby an initial impulse may be imparted to said impression cylinder, said first named tappet being adjustable circumferentially of said plate cylinder, whereby the moment of said initial  
 50 impulse may be varied to adapt the machine to plates differing in length, an inking mechanism, means adapted to wipe and polish a plate upon said plate cylinder, means whereby a dampened sheet of paper may be  
 55 fed between said plate cylinder and said impression cylinder, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder and remove it from the machine.

60 18. A printing machine embodying there- in a printing couple including a rotary plate cylinder and a plurality of rotary impres-  
 65 sion cylinders acting successively to exert pressure upon a plate carried by said plate cylinder, said cylinders being spaced apart

to afford a dwell after each application of pressure upon the plate, and being frictionally driven through engagement with a plate upon said plate cylinder, a plurality of tappets carried by said plate cylinder, 70 one for each plate thereon, a cooperating tappet carried by each of said impression cylinders whereby each of said cylinders receives an initial impulse from said plate cylinder to insure the register with each of said 75 impression cylinders of each of the plates upon said plate cylinder, an inking mechanism, means adapted to wipe and polish a plate upon said plate cylinder, means whereby a dampened sheet of paper may be fed 80 between said plate cylinder and said impression cylinders, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder and remove it from the machine. 85

19. A printing machine embodying there-  
 in a printing couple including a rotary plate cylinder and a plurality of rotary impres-  
 90 sion cylinders acting successively to exert pressure upon a plate carried by said plate cylinder, said cylinders being spaced apart to afford a dwell after each application of pressure upon the plate, and being frictionally driven through engagement with a plate upon said plate cylinder, a plurality of 95 tappets carried by said plate cylinder, one for each plate thereon, a cooperating tappet carried by each of said impression cylinders whereby each of said cylinders receives an initial impulse from said plate cylinder to 100 insure the register with each of said impression cylinders of each of the plates upon said plate cylinder, means whereby each of the tappets upon said plate cylinder may be adjusted independently of the other, an 105 inking mechanism, means adapted to wipe and polish a plate upon said plate cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinders, and a delivery 110 mechanism adapted to strip said sheet of paper from a plate upon said cylinder and remove it from the machine.

20. A printing machine embodying there-  
 115 in a printing couple including a rotary plate cylinder and a plurality of rotary impression cylinders acting successively to exert pressure upon a plate carried by said plate cylinder, each of said cylinders having an 120 endless flexible surface thereon, said cylinders being spaced apart to afford a dwell after each application of pressure upon the plate, an inking mechanism, means adapted to wipe and polish a plate upon said plate 125 cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinders, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder, and remove it from the machine. 130

21. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means adapted to intermittently feed a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means adapted to intermittently feed a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, a cam rotatable with said plate cylinder adapted to engage said cloth feeding means successively adjacent to the rear edge of the plate upon said cylinder, whereby said cloths are fed after disengagement of the plate therewith, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder, and remove it from the machine.

22. A printing machine embodying therein a printing couple including therein a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, a cloth reel and a cloth rewinding reel carrying a cloth passing about said platen, a pawl and ratchet mechanism upon said rewinding reel, an oscillatory lever, a link connection between said pawl and ratchet mechanism and said lever, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, a cloth reel and a cloth rewinding reel carrying a cloth passing about said platen, a pawl and ratchet mechanism adapted to actuate said rewinding reel, an oscillatory lever, a link connection between said pawl and ratchet mechanism and said oscillatory lever, a cam rotatable with said plate cylinder and operative upon said levers successively, the operative portion of said cam being adjacent to the rear edge of a plate upon said plate cylinder, whereby said cloths will be fed after disengagement with said plate, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder, and remove it from the machine.

23. A printing machine embodying therein a printing couple including therein a ro-

tary plate cylinder adapted to have a plurality of plates mounted thereon, and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, a cloth reel and a cloth rewinding reel carrying a cloth passing about said platen, a pawl and ratchet mechanism upon said rewinding reel, an oscillatory lever, a link connection between said pawl and ratchet mechanism and said lever, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, a cloth reel and a cloth rewinding reel carrying a cloth passing about said platen, a pawl and ratchet mechanism adapted to actuate said rewinding reel, an oscillatory lever, a link connection between said pawl and ratchet mechanism and said oscillatory lever, a cam rotatable with said plate cylinder and operative upon said levers successively, said cam having a plurality of operative portions corresponding with the number of plates upon said cylinder, each said operative portion being adjacent to the rear edge of a plate upon said plate cylinder, whereby said cloths will be fed after disengagement with said plate, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism adapted to strip said sheet from a plate upon said cylinder, and remove it from the machine.

24. A printing machine embodying therein a printing couple including therein a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a plurality of platens adapted to bear toward a plate upon said plate cylinder, each of said platens having associated therewith a cloth reel and a cloth rewinding reel carrying a cloth passing about said platen, a pawl and ratchet mechanism upon said rewinding reel, an oscillatory lever, and a link connection between said pawl and ratchet mechanism and said lever, a polishing mechanism including therein a plurality of platens adapted to bear toward a plate upon said plate cylinder, each of said platens having associated therewith a cloth reel and a cloth rewinding reel carrying a cloth passing about said platen, a pawl and ratchet mechanism adapted to actuate said rewinding reel, an oscillatory lever, and a link connection between said pawl and ratchet mechanism and said oscillatory lever, a cam rotatable with said plate cylinder and operative upon said levers successively, the operative portion of said cam being adjacent to the rear edge of

a plate upon said plate cylinder, whereby said cloths will be fed after disengagement with said plate, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism adapted to strip said sheet of paper from a plate upon said cylinder, and remove it from the machine.

25. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder, an inking mechanism, wiping and polishing mechanisms associated with said plate cylinder, a feeding shelf adapted to receive one sheet of paper at a time, mechanically actuated means for advancing a sheet of paper on said feeding shelf toward and delivering it directly between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said plate cylinder and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

26. A printing machine embodying therein a printing couple including a rotary plate cylinder adapted to receive a plurality of plates and a rotary impression cylinder, an inking mechanism, wiping and polishing mechanisms associated with said plate cylinder, a feeding shelf adapted to receive one sheet of paper at a time, mechanically actuated means having continuous uni-directional movement for advancing a sheet of paper on said feeding shelf toward and delivering it directly between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said plate cylinder and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

27. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder, an inking mechanism, wiping and polishing mechanisms associated with said plate cylinder, a feeding shelf adapted to receive one sheet of paper at a time, a plate projecting from said feed shelf to adjacent to said cylinders respectively, mechanically actuated means for advancing a sheet of paper on said feeding shelf toward and delivering it directly between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said plate cylinder and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

28. A printing machine embodying therein a printing couple including a rotary plate

cylinder adapted to receive a plurality of plates and a rotary impression cylinder, an inking mechanism, wiping and polishing mechanisms associated with said plate cylinder, a feeding shelf adapted to receive one sheet of paper at a time, mechanically actuated means having continuous uni-directional movement for advancing a sheet of paper on said feeding shelf toward and delivering it directly between said plate cylinder and said impression cylinder, comprising a plurality of endless conveyer members moving below the surface of said shelf, projections carried thereby extending above said shelf, and power transmission means between said plate cylinder and said conveyer members whereby the lineal traverse of said members is caused to correspond with the peripheral traverse of said cylinder.

29. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, means imparting lateral movement thereto, and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, means imparting lateral movement thereto, and means intermittently feeding a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said cylinder and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

30. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, means imparting lateral movement thereto, and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder, means imparting lateral movement thereto, and means intermittently feeding a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between

their platens and the plate upon the cylinder, said means imparting lateral movement to said platens comprising a plurality of rotary disks eccentric pins thereon engaging said platens respectively, radially projecting shafts supporting said disks, gears carried by the shaft of said plate cylinder, gears on adjacent shafts meshing with said last named gears, and intermeshing gears carried by adjacent shafts whereby one shaft is driven from the other, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism embodying therein means adapted to strip said sheet of paper from a plate upon said cylinder, and a conveyer mechanism adapted to receive a sheet of paper from said stripping means and remove it from the machine.

31. A printing machine embodying therein a platen for a wiping or polishing cloth comprising a head having a recessed lower face, an expansible, hollow flexible cushion seated therein, means whereby said cushion may be inflated, a flexible facing protecting the lower face of said cushion, and a leather facing having its ends secured to said head and inclosing said cushion and said flexible facing.

32. A printing machine embodying therein a printing couple including a movable plate supporting means and an oppositely disposed impression member, an inking mechanism, wiping and polishing means between said inking mechanism and said impression member, and plate damping means between said impression member and said inking mechanism, comprising a platen adapted to bear toward said plate supporting means, means imparting lateral movement to said platen, an absorbent strip passing about said platen, a bath through which said strip passes, and means imparting an intermittent feeding movement to said strip.

33. A printing machine embodying therein a printing couple comprising a rotary plate cylinder and a rotary impression cylinder, an inking mechanism, wiping and polishing means between said inking mechanism and said impression roller, and a damping mechanism between said impression cylinder and said inking mechanism, comprising a platen adapted to bear toward said plate cylinder, a cloth reel and a cloth rewinding reel associated therewith, a bath through which the cloth passes, a pawl and ratchet mechanism adapted to actuate said rewinding reel, an oscillatory lever, a link connecting said lever with said pawl and ratchet mechanism, and a cam rotating with said plate cylinder and engaging said lever, said cam having an operative surface thereon adjacent to the rear edge of a plate on

said plate cylinder, whereby said rewinding reel will be actuated when the damping cloth is disengaged from a plate.

34. A printing machine embodying therein a printing couple comprising a rotary plate cylinder adapted to have a plurality of plates mounted thereon and a rotary impression cylinder, an inking mechanism, wiping and polishing means between said inking mechanism and said impression roller, and a damping mechanism between said impression cylinder and said inking mechanism, comprising a platen adapted to bear toward said plate cylinder, a cloth reel and a cloth rewinding reel associated therewith, a bath through which the cloth passes, a pawl and ratchet mechanism adapted to actuate said rewinding reel, an oscillatory lever, a link connecting said lever with said pawl and ratchet mechanism, and a cam rotating with said plate cylinder and engaging said lever, said cam having a plurality of operative surfaces thereon, such surfaces being respectively adjacent the rear edge of the respective plates on said plate cylinder, whereby said rewinding reel will be actuated when the damping cloth is disengaged from a plate.

35. A printing machine embodying therein a printing couple including a rotary plate cylinder and a rotary impression cylinder adapted to be frictionally driven through engagement with a plate upon said plate cylinder, an inking mechanism, a wiping mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a wiping cloth about said platen, a polishing mechanism including therein a platen adapted to bear toward a plate upon said plate cylinder and means intermittently feeding a polishing cloth about said platen, whereby said wiping and polishing cloths respectively are interposed between their platens and the plate upon the cylinder, means whereby a dampened sheet of paper may be fed between said plate cylinder and said impression cylinder, and a delivery mechanism including therein means adapted to strip said sheet of paper from a plate upon said cylinder, tapes leading from said last named means, whereby each sheet as received from the plate is removed from the machine and delivered face upward to the inspector.

In witness whereof, I have hereunto affixed my signature in the presence of two subscribing witnesses, this 9th day of October, 1912.

WILLIAM S. EATON

Witnesses:

F. T. WENTWORTH,  
OTTO MUNK.