

(No Model.)

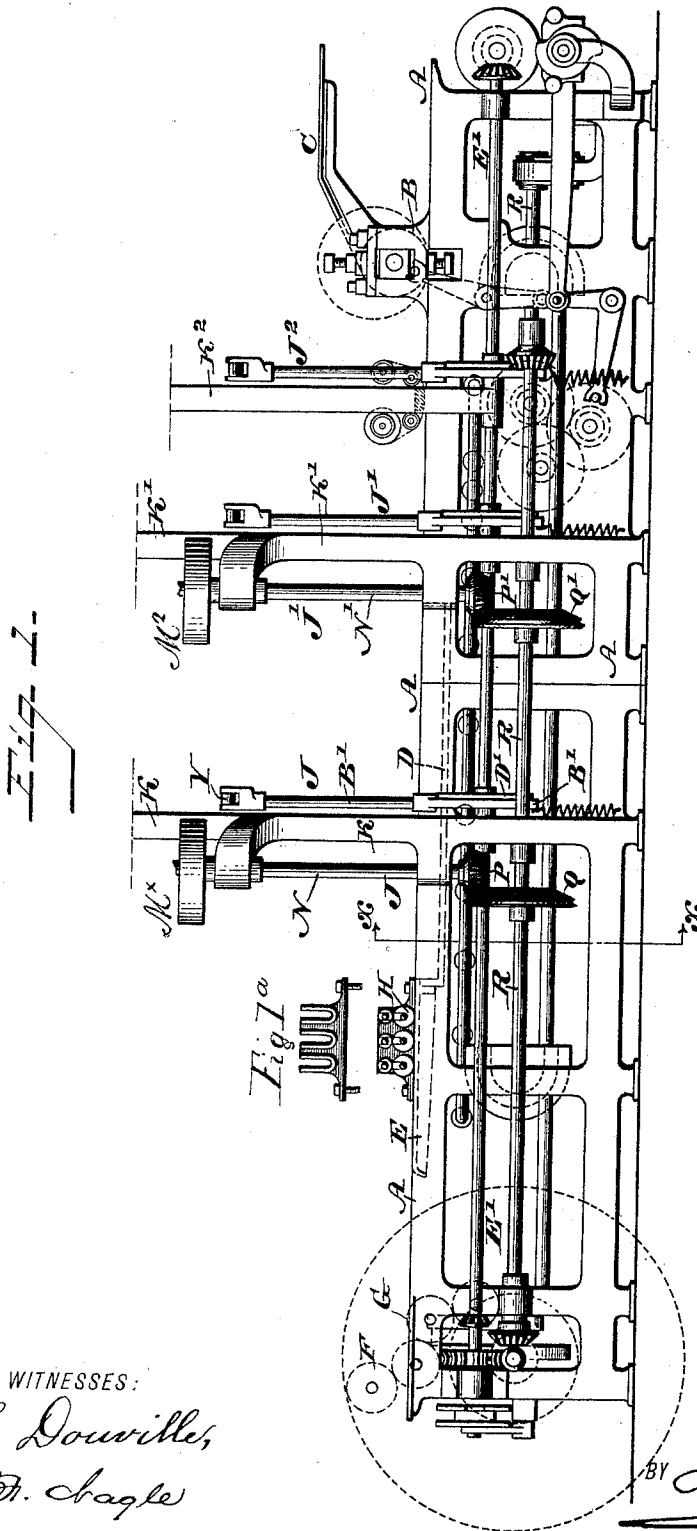
11 Sheets—Sheet 1.

J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

Patented May 15, 1894.



WITNESSES:

L. Douville,
P. B. Bagle

INVENTOR

Jean Lariviere

BY

ATTORNEY.

(No Model.)

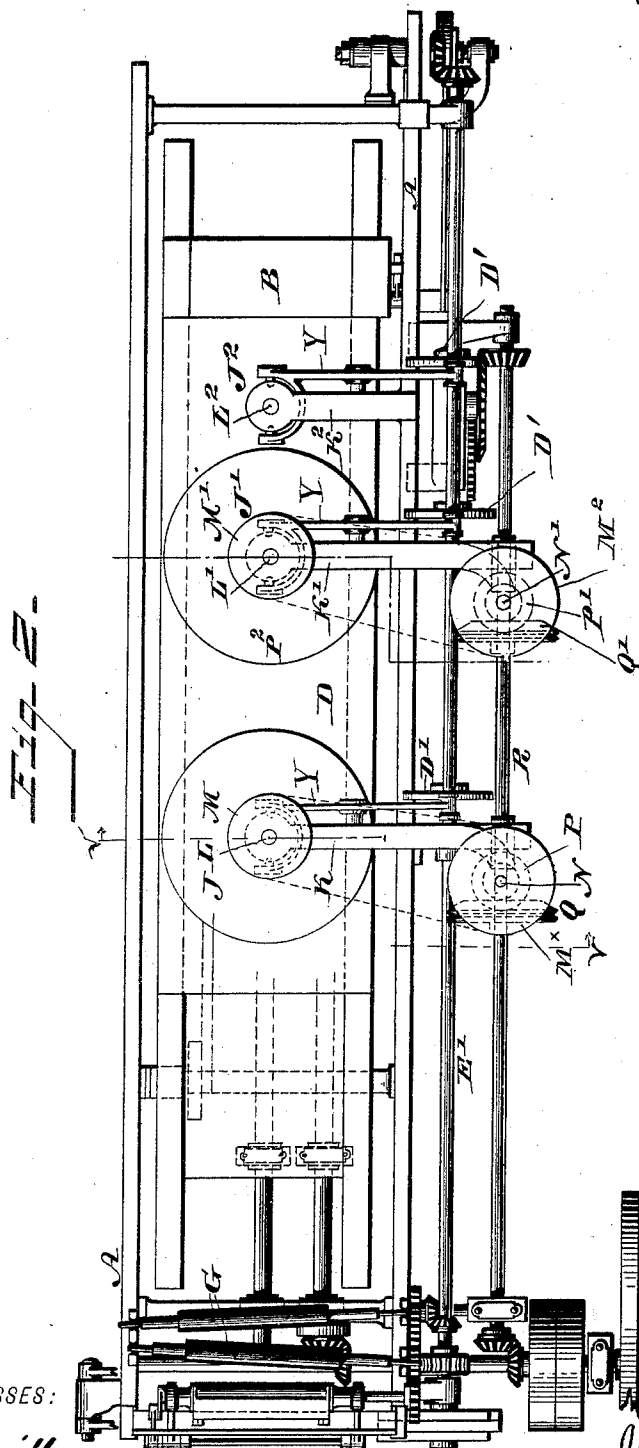
11 Sheets—Sheet 2.

J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

Patented May 15, 1894.



WITNESSES:

L. Dowville,
P. St. Charles.

INVENTOR

BY

BY Jean Larriere
John C. Dierckx
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(No Model.)

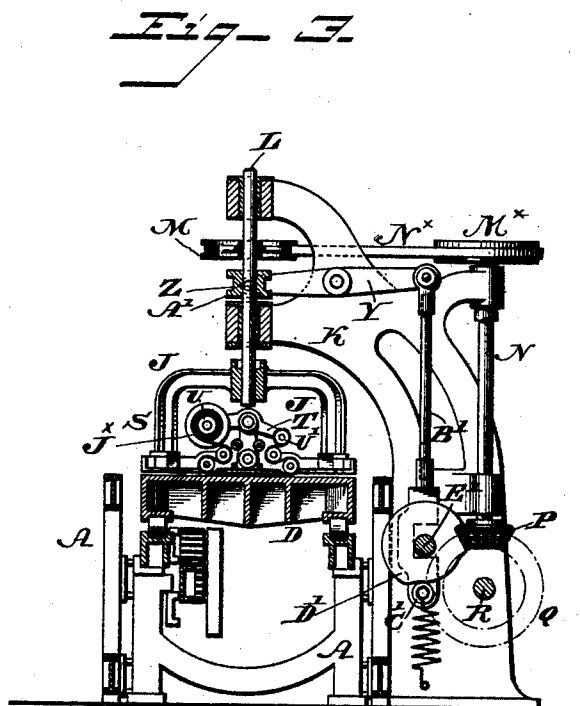
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PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

Patented May 15, 1894.



WITNESSES:

L. Douville,
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INVENTOR

INVENTOR,
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THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.)

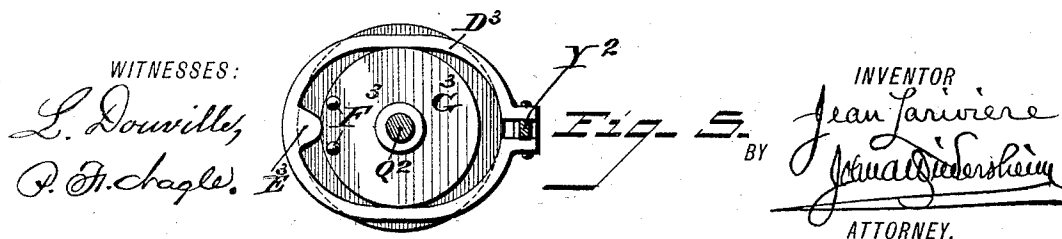
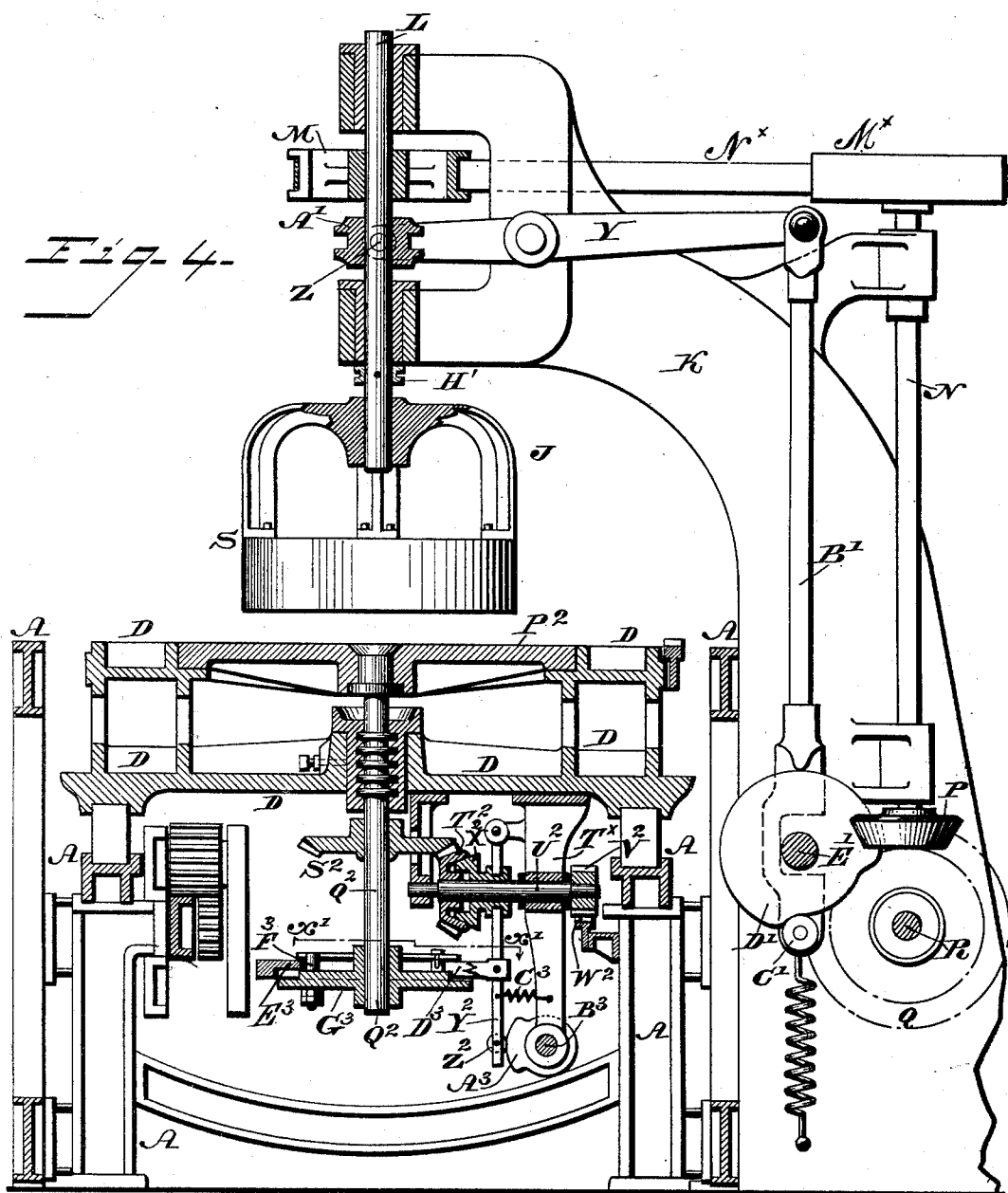
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J. LARIVIERE.

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(No Model.)

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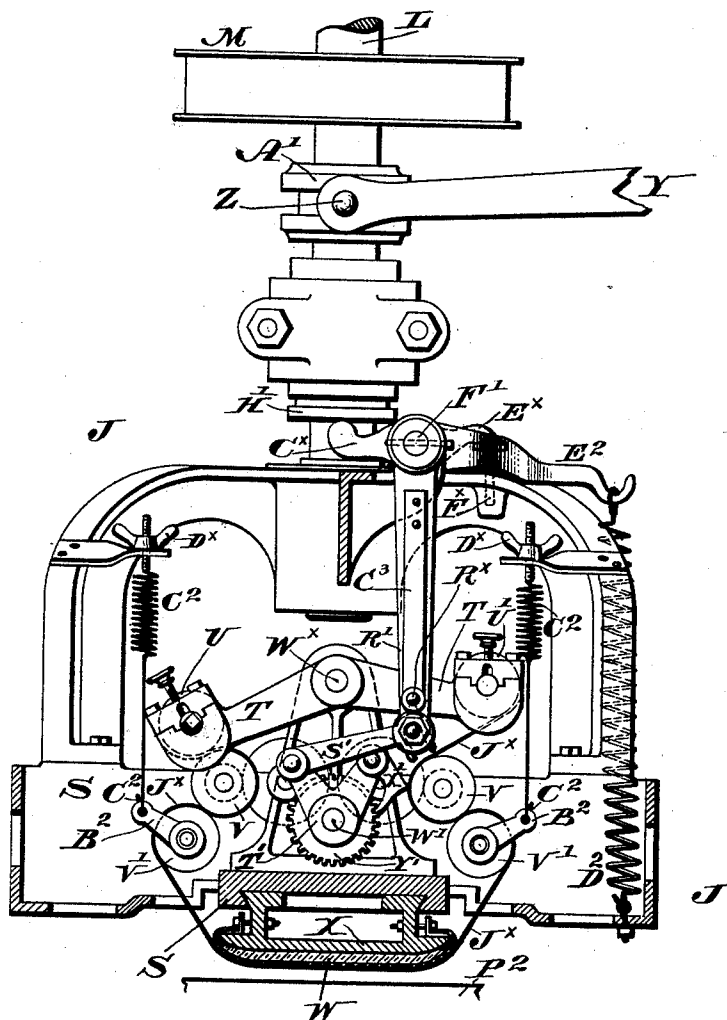
J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

Patented May 15, 1894.

Fig. 6.



WITNESSES:

L. Douville,
P. F. Chagler

INVENTOR

Jean Lariviere
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ATTORNEY.

(No Model.)

11 Sheets—Sheet 6.

J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

Patented May 15, 1894.

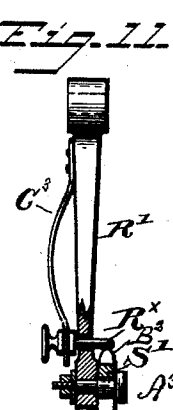
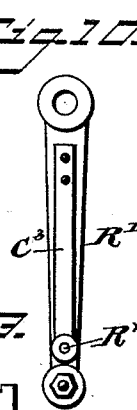
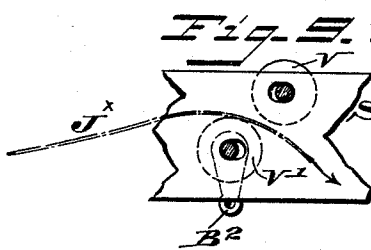
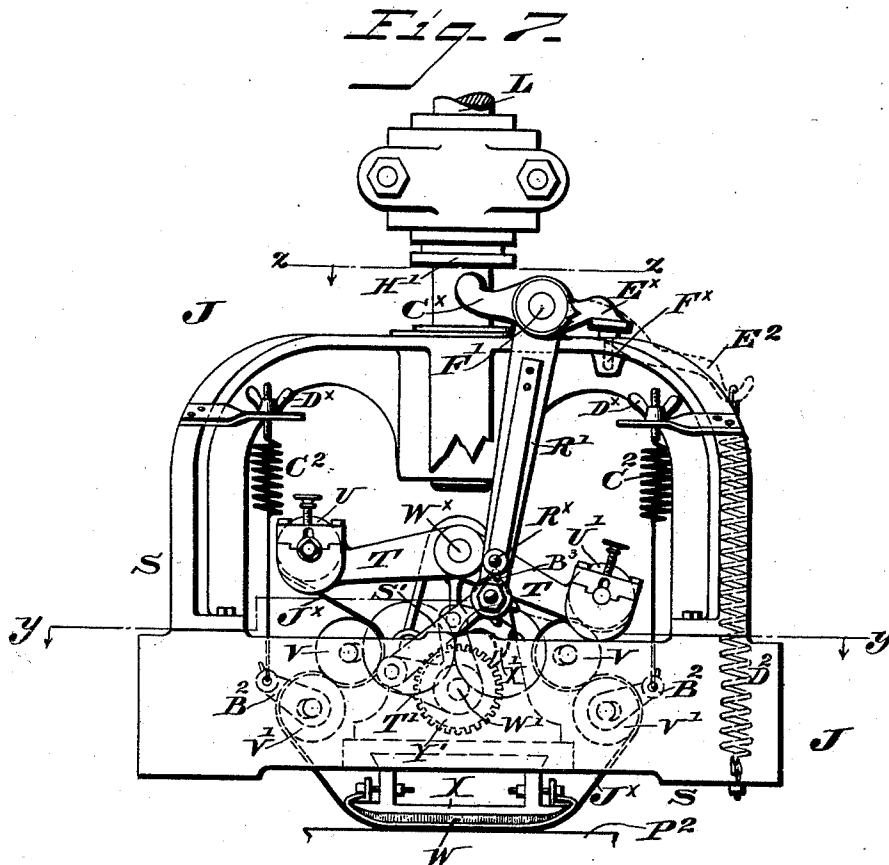
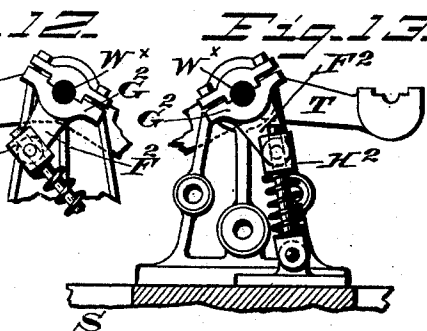


Fig. 12

WITNESSES:
L. Douville,
O. H. Chagel



INVENTOR
Jean Lariviere
BY *Handwritten signature*
ATTORNEY.

(No Model.)

11 Sheets—Sheet 7.

J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

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Fig. 15.

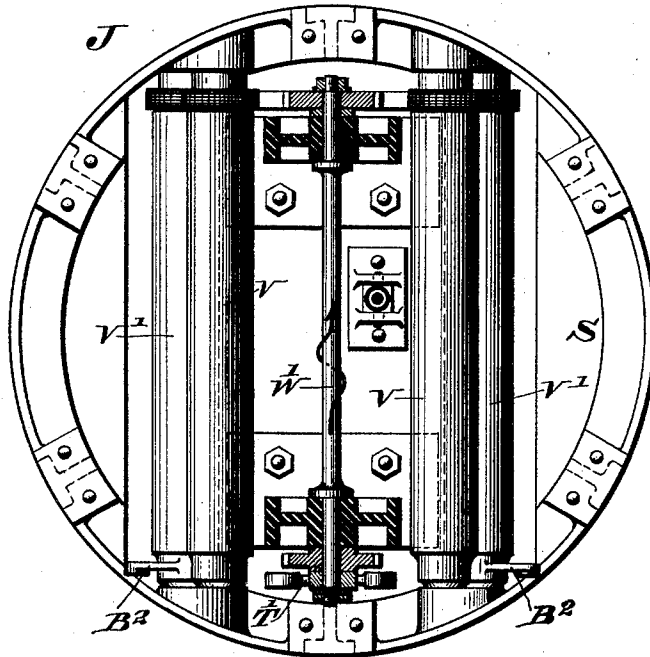
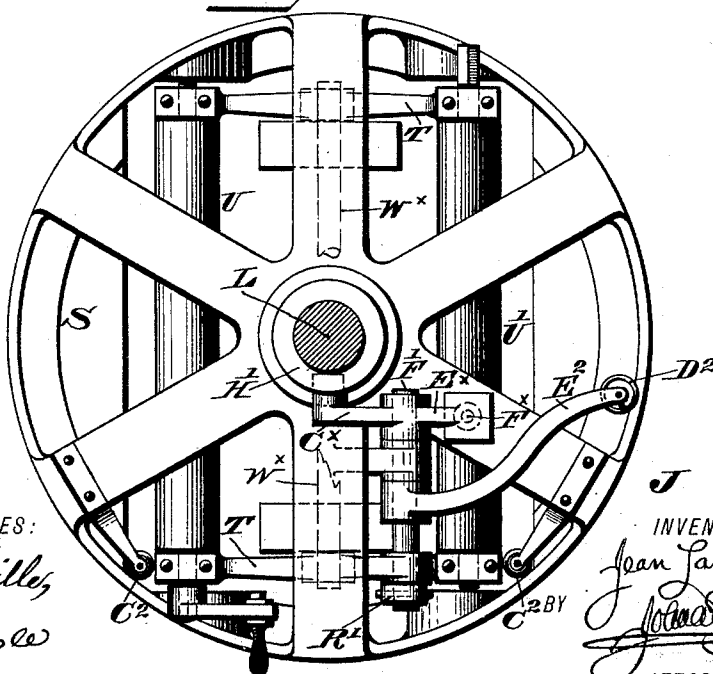


Fig. 15.



WITNESSES:

L. Douville,
P. F. Chagel

INVENTOR

Jean Lariviere
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(No Model.)

11 Sheets—Sheet 8.

J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

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Fig-16.

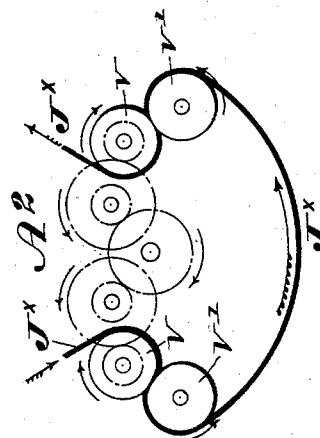
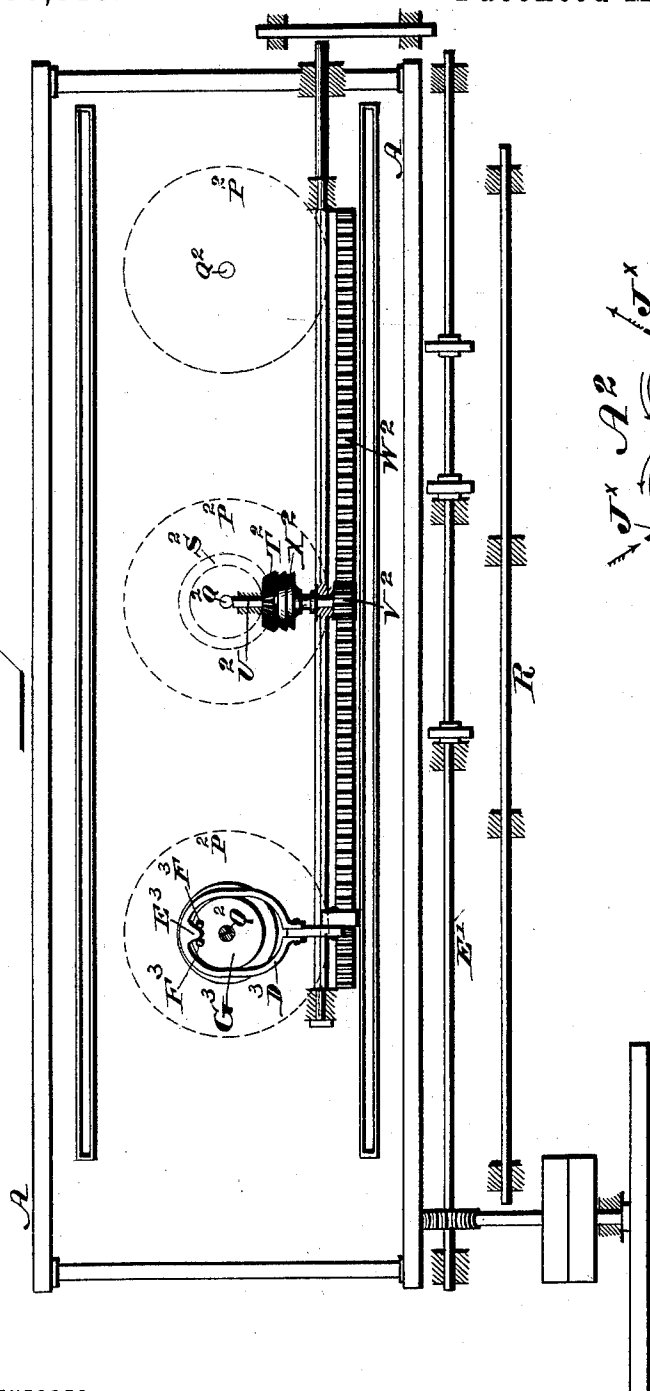


Fig-17.

WITNESSES:

L. Douville,
P. F. Chagel.

INVENTOR.

Jean Lariviere
BY *John A. Diederichsen*
ATTORNEY.

(No Model.)

11 Sheets—Sheet 9.

J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

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Fig. 18.

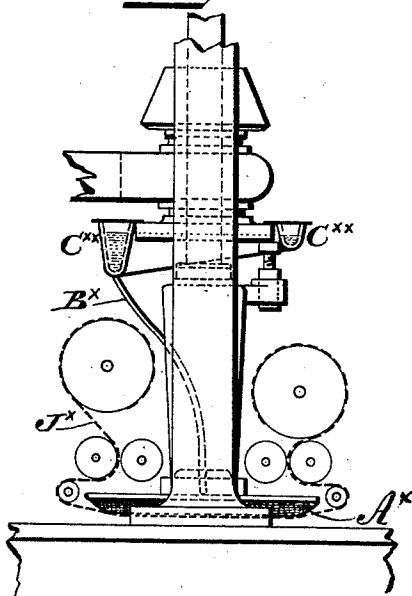
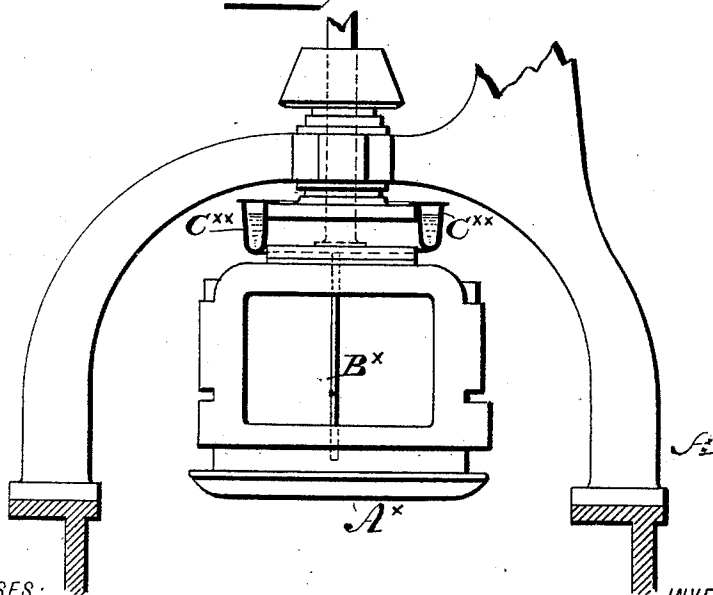


Fig. 19.



WITNESSES:

L. Douville,
P. H. Nagle.

INVENTOR

Jean Lariviere
BY *John A. Gieseler*
ATTORNEY.

(No Model.)

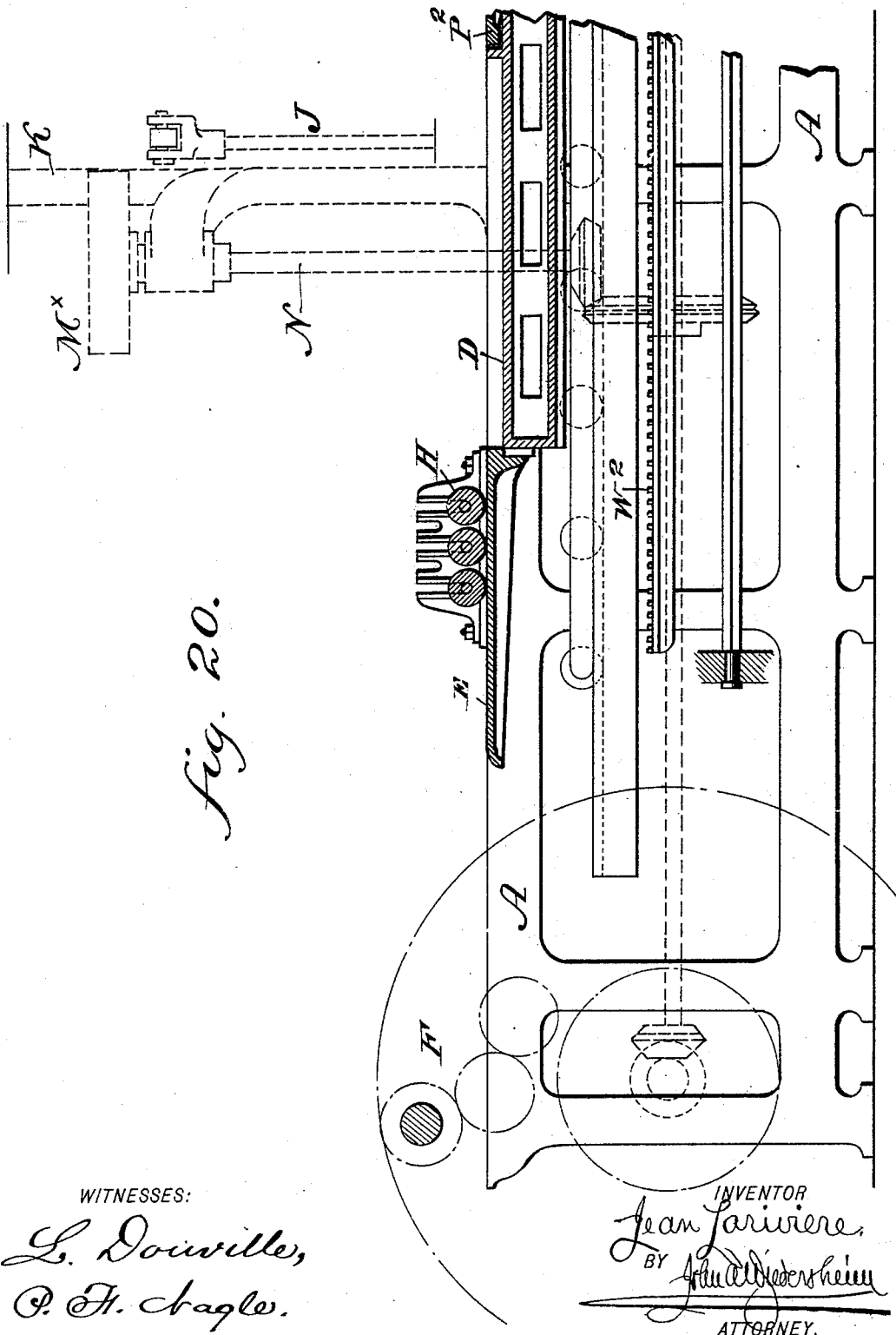
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J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

Patented May 15, 1894.



(No Model.)

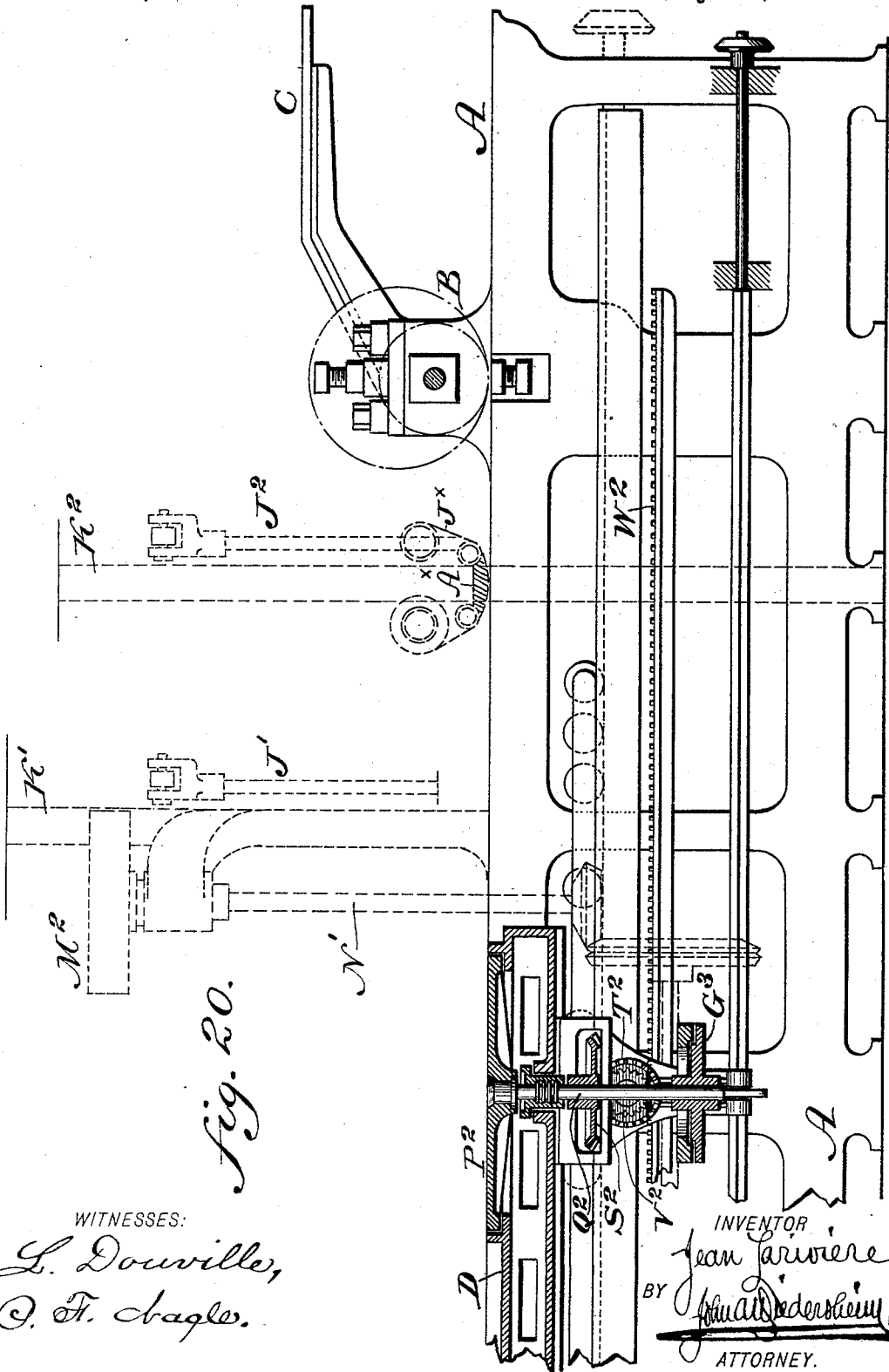
11 Sheets—Sheet 11.

J. LARIVIERE.

PRINTING MACHINE FOR COPPER OR STEEL PLATES.

No. 519,915.

Patented May 15, 1894.



UNITED STATES PATENT OFFICE.

JEAN LARIVIERE, OF PARIS, FRANCE.

PRINTING-MACHINE FOR COPPER OR STEEL PLATES.

SPECIFICATION forming part of Letters Patent No. 519,915, dated May 15, 1894.

Application filed July 30, 1891. Serial No. 401,169. (No model.) Patented in France August 26, 1886, No. 178,211; in Germany February 4, 1890, No. 57,908; in England May 24, 1890, No. 14,075; in Austria-Hungary December 30, 1890, No. 40,584 and No. 64,577; in Italy January 2, 1891, No. 28,740; in Russia August 31, 1892, No. 10,049; in Belgium December 14, 1892, No. 92,982, and in Switzerland December 18, 1892, No. 3,283.

To all whom it may concern:

Be it known that I, JEAN LARIVIERE, a citizen of France, residing at Paris, France, have invented a new and useful Improvement in Printing-Machines for Copper or Steel Plates, (for which Letters Patent have been granted as follows: in France, No. 178,211, dated August 26, 1886; in Great Britain, No. 14,075, dated May 24, 1890; in Switzerland, No. 3,283, dated December 18, 1892; in Belgium, No. 92,982, dated December 14, 1892; in Russia, No. 10,049, dated August 31, 1892; in Germany, No. 57,908, dated February 4, 1890; in Austria-Hungary, No. 40,584 and No. 64,577, dated December 30, 1890, and in Italy, No. 28,740, dated January 2, 1891), which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in copper and steel plate printing machines, and consists of novel automatically operating wipers for the same.

It further consists of the combination of parts as hereinafter described.

Figure 1 represents a side view of a portion of a machine showing parts embodying my invention. Fig. 1^a represents a side view of a detail portion of the machine showing the detachable roller bearings. Fig. 2 represents a plan view of a portion of the parts shown in Fig. 1, the inking rollers and feed table being omitted. Fig. 3 represents a vertical section on line *x, x*, Fig. 1. Fig. 4 represents a vertical section on an enlarged scale, on line *v, v*, Fig. 2. Fig. 5 represents a horizontal section on line *x', x'*, Fig. 4. Fig. 6 represents a side elevation partly sectional, of a portion of a wiper. Fig. 7 represents a side elevation of one of the wipers, the operating parts being in different positions from those in Fig. 6. Fig. 8 represents a side view of a detail portion of the device. Fig. 9 represents a side view of a detail portion showing two of the guiding rollers of a wiper as separated, allowing the insertion of a web between them. Figs. 10 and 11 represent respectively views at right angles to each other of a detail portion of the device. Fig. 12 represents a side view of a lever or arm holding the rollers

carrying a web, showing the spring and operating arm of the lever. Fig. 13 represents a side view of the same parts in a different position. Fig. 14 represents a horizontal section on line *y, y*, Fig. 7. Fig. 15 represents a horizontal section on line *z, z*, Fig. 7. Fig. 16 represents a horizontal section of a portion of the machine showing the rack for operating the rotating table. Fig. 17 represents an end view of the rollers for unwinding and winding the web on its rollers, and Figs. 18 and 19 represent views at right angles to each other of a wiper with moistening device. Fig. 20 consists of two sheets of drawings, one half of the machine on each sheet, and illustrates a partial side elevation and partial longitudinal vertical section of the machine.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings:—A designates a frame having journaled therein an impression cylinder B of the usual construction, and provided with a feed table C and a carriage or bed D, the latter movable in ways on the frame A, and adapted to support a plate from which the printing is done.

The mechanism for operating the carriage D is of any usual construction, and not being claimed herein is not shown nor described.

E designates an inking table, F an ink distributor, G distributing rollers, and H an inking roller, each of said parts being of any usual and well known form of construction.

The wipers J, J', and J² are identical in construction, except as hereinafter set forth and a description of the parts of one and its operating gearing will be sufficient to fully explain all of the same.

Suitably supported above the carriage D, and in suitable bearings formed in arms K, K', and K² are the vertical shafts L, L' and L², of which the shafts L and L' receive rotary motion by means of the pulleys M, M' thereon connected by belts, N^x N² with pulleys M^x M² mounted on the shafts N, N', having the wheels P, P', in frictional contact with wheels Q, Q', mounted on a rotary shaft R journaled on the frame A. The wiper J² has simply rising and falling motion, its shaft L²

having no rotary motion. Secured to the lower end of the shaft L, which is adapted to rise and fall in its bearings is a frame or cage S in which is journaled a horizontal shaft W^x having mounted thereon the two levers or arms T, T supporting at their outer ends the rollers U, U', to which are secured the ends of the web J^x of the wiper J, which passes around the tension rollers V, V', and the cushion W. The said cushion W is connected with a block X, detachably secured to the bottom of the frame S, and the said tension rollers V, V', have slotted bearings in the said frame, so that the said rollers may be separated and thereby permit the introduction between them of a new web. See Fig. 9. In Fig. 7 the journals of the said rollers are shown at the inner ends of the slots, this position being due to the strain of the web J^x thereon.

The shaft L is raised and lowered by means of a lever Y mounted on the arm K, and connected at one end to said shaft by means of the studs Z fitted in a circumferential grooved collar A', which is secured to said shaft, said lever having at its other end a rising and falling rod B' provided with an anti-frictional roller C', which is in contact with a cam D' on the driving shaft E'. A rock-shaft F' journaled in the upper walls of the frame S, has an arm or lever C^x connected therewith, the end of said lever being adapted to come in contact with a collar H' on the shaft L, when the said shaft is lowered, and thereby oscillate the said rock shaft.

Depending from the rock-shaft F' is a lever or arm R' having pivotally connected to its lower end a link S', which is also connected to one limb of a bell crank lever T' mounted on the shaft W', suitably journaled in the frame S, the other limb being provided with a pawl X'. The end of the link S' which is connected by the pin A³ with the arm R' is forked, so as to be easily removed from the said arm and pin, when a pin R^x passing through the arm R' and held against the said forked end of the limb by the spring C³ is removed from contact therewith. A gear wheel Y' secured on said shaft W' is actuated by the movements of the said pawl X', so as to rotate said shaft and thereby the connected frictional train A², see Fig. 17, so that the web is slowly unwound from the roller U, and wound on the roller U'. The said train A² is connected with the feed rollers V, V, whose journals are mounted in slots in the frame S.

V', V', designate pressure rollers freely mounted and rotatable on shafts journaled in slots in said frame. The web J^x is so passed around said rollers V, V, V', V', that their shafts occupy adjacent ends of their respective slots and each set V, V', of the rollers holds the web tightly between it so that when the rollers V, V, are rotated by means of the train A² rotary motion is also imparted to the rollers V', V', and the web is advanced between the rollers V and V'. To further insure the pressure of the rollers V', V', against

the web on the rollers V, V, an arm B is secured to each of the shafts of the rollers V', and an expansile spring C² is secured to said arm and to an attachment of the frame in such manner as to cause the shaft of the roller V' to occupy the end of the slot in which it has a bearing, adjacent to the roller V. See Fig. 7.

In Fig. 9, the arm B² is shown free from the spring and the shaft of the roller V' is shown in the end of the slot farthest from the roller V, in which position the web is not advanced or fed from one roller U' to the other roller U'. The shaft of the roller V' is moved by hand by means of the arms B² when the said arms are released from the springs C². The ends of the springs C² are threaded, freely passing through openings in their supports, and are provided with nuts D^x, for securing them in place. A spring D² secured at one end to the frame S, and at the other to the end of a lever E² attached to the shaft F' returns the levers S', T', to their original positions when the movement is completed. A pin F^x in the frame S limits the play of said shaft by being in the path of travel of an arm E^x thereon.

Connected with an arm F² depending from an oscillating box or collar G² on the shaft W^x of the levers T, T, is a spring knuckle joint H² for insuring the throw of the said oscillating levers T, T. The cushion A^x around which passes the web in connection with the wiper J' is moistened by water from a pipe B^x leading from a trough C^x suitably supported so as to keep the said web properly moistened.

The operating mechanism of the wipers J and J' is timed so as to rise when the carriage D leaves the impression cylinder, and lower when the carriage approaches or returns toward the same. On the carriage D is a table P² for carrying the engraved plate from which the printing is to be done. To impart intermittent rotary motion to the said table P², the same is mounted on a rotary shaft Q² suitably supported in the said carriage and carries a bevel gear wheel S², meshing with a bevel gear wheel T² on a shaft U², which latter is journaled in a depending attachment T^x of the carriage, and is rotated during a portion of the movement of the carriages by reason of the contact of a pinion V² thereon with a rack W² on the frame A of the machine. The bevel gear wheel T² is loosely mounted on the shaft U² and is connected so as to rotate therewith at the proper time, by means of the clutch X² operated by the lever Y², which latter is pivoted to the attachment T^x at one end and provided with an anti-frictional roller Z² at its other end, the said roller being held in contact with a cam A³ on a shaft B³, operated from the driving shaft of the machine, by means of the spring C³, which is attached to the said lever Y² and the attachment T^x. A loop D³ connected with the lever Y², and provided with a tooth or

stud E³, adapted to be inserted between the studs or pins F³ on a disk G³ on the shaft Q², serves to arrest the rotation of the table P² on its arrival at its normal position, and also
 5 insures the proper position of the table when it comes to rest. The clutch X² is released from the bevel gear wheels T² at the time the stud E³ engages the pins F³. The parts are so timed that the clutch X² is engaged with
 10 the bevel wheel T², on the passage of the table under the wipers J and J', during the return movement of the carriage. During the rest of the time, that is, during the whole forward movement of the carriage, and on
 15 its return along the spaces outside of the wipers J and J', the table is not rotated. The operation of the carriage is the same as in machines of a similar character, and forming no part *per se* of this invention, need not
 20 be further described herein.

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

1. In a printing press, a frame, a reciprocating carriage having a rotatable table for carrying the printing plate, a series of rising and falling wipers above said table, means for operating the bed and table, and mechanism for operating said wipers, said parts being
 25 combined substantially as described.

2. In a printing press, a frame, a reciprocating carriage having thereon a rotatable table for carrying the printing plate, and a series of wipers each having independent mechanism for operating the same, said parts being
 35 combined substantially as described.

3. A frame, a reciprocating carriage, a table mounted on said carriage for carrying the printing plate, mechanism for intermittingly
 40 rotating said table, a series of wipers adapted to contact with a printing plate on said table, and mechanism substantially as described for operating each of said wipers independently of each other, said parts being combined
 45 substantially as described.

4. A frame, a vertical shaft supported in said frame and having a frame on its lower end, rollers having pivoted supporting arms, a cushion, spring controlled tension rollers,
 50 and a wiping web connected to said first mentioned rollers and passing around said cushion and mechanism substantially as described for oscillating said pivoted roller arms and thereby operating said web, said parts being
 55 combined substantially as described.

5. A frame, rollers having pivoted supporting arms, a cushion, guiding rollers having slotted journal bearings, a wiping web connected to said first mentioned rollers and
 60 passing around said cushion, and mechanism substantially as described for oscillating said pivoted supporting arms, said parts being combined substantially as described.

6. A frame, rollers having pivoted supporting arms, a cushion, guiding rollers, a train

of frictional gearing operating said tension rollers, a wiping web connected with said first mentioned rollers, and passing around said tension rollers and cushion, and mechanism substantially as described for operating said
 70 train of frictional gearing, said parts being combined substantially as described.

7. In a printing press, a frame having slots therein, a shaft mounted in said slots, a tension roller freely mounted on said shaft, an
 75 arm connected with said shaft, a spring connected with said arm and frame, a wiping web passing around said roller, and means substantially as described for supporting the ends of said web, said parts being combined
 80 substantially as described.

8. A rising and falling shaft with a frame attached thereto, a rock shaft journaled in said frame, a lever or arm connected with said shaft and adapted to contact with a col-
 85 lar on said shaft, oscillating arms carrying rollers, tension rollers, a wiping web connected to said rollers and passing around said tension rollers, a train of frictional gearing in contact with said tension rollers, a shaft
 90 with a gear wheel therein, a depending lever on said rock shaft and a bell crank lever on said gear wheel shaft having a link connection with said depending lever, said parts being combined substantially as described.
 95

9. Pivoted arms carrying rollers, tension rollers, a cushion, a web connected to said first mentioned rollers and passing around the tension rollers, mechanism substantially as described for rocking said arms and mechanism
 100 for limiting the play of said operating mechanism, said parts being combined substantially as described.

10. A frame, a carriage movable thereon, a table with shaft mounted on said carriage, a
 105 rack on said frame, a bevel gear wheel on said table shaft, a shaft mounted on the carriage and having a bevel wheel meshing with the bevel gear wheel on the table shaft and provided with a pinion meshing with the said
 110 rack, said parts being combined substantially as described.

11. A carriage, a table with shaft mounted on said table, a disk on said shaft, a bevel
 115 wheel on said shaft a countershaft journaled in a depending attachment on the carriage and having a bevel wheel loosely mounted thereon adapted to mesh with the bevel wheel on the table shaft, a clutch on said counter shaft, a lever pivoted to said depending attachment
 120 and operating said clutch, a rotary shaft with a cam operating said lever, and means connected with said lever for engaging said disk, said parts being combined substantially as described.

JEAN LARIVIERE.

Witnesses:

ROBT. M. HOOPER,

E. NESSMEY,

ROD. BONER, Jr.