

No. 879,849.

PATENTED FEB. 25, 1908.

H. C. BIETTE.
PENCIL PRINTING MACHINE.

APPLICATION FILED MAR. 26, 1907.

4 SHEETS—SHEET 1.

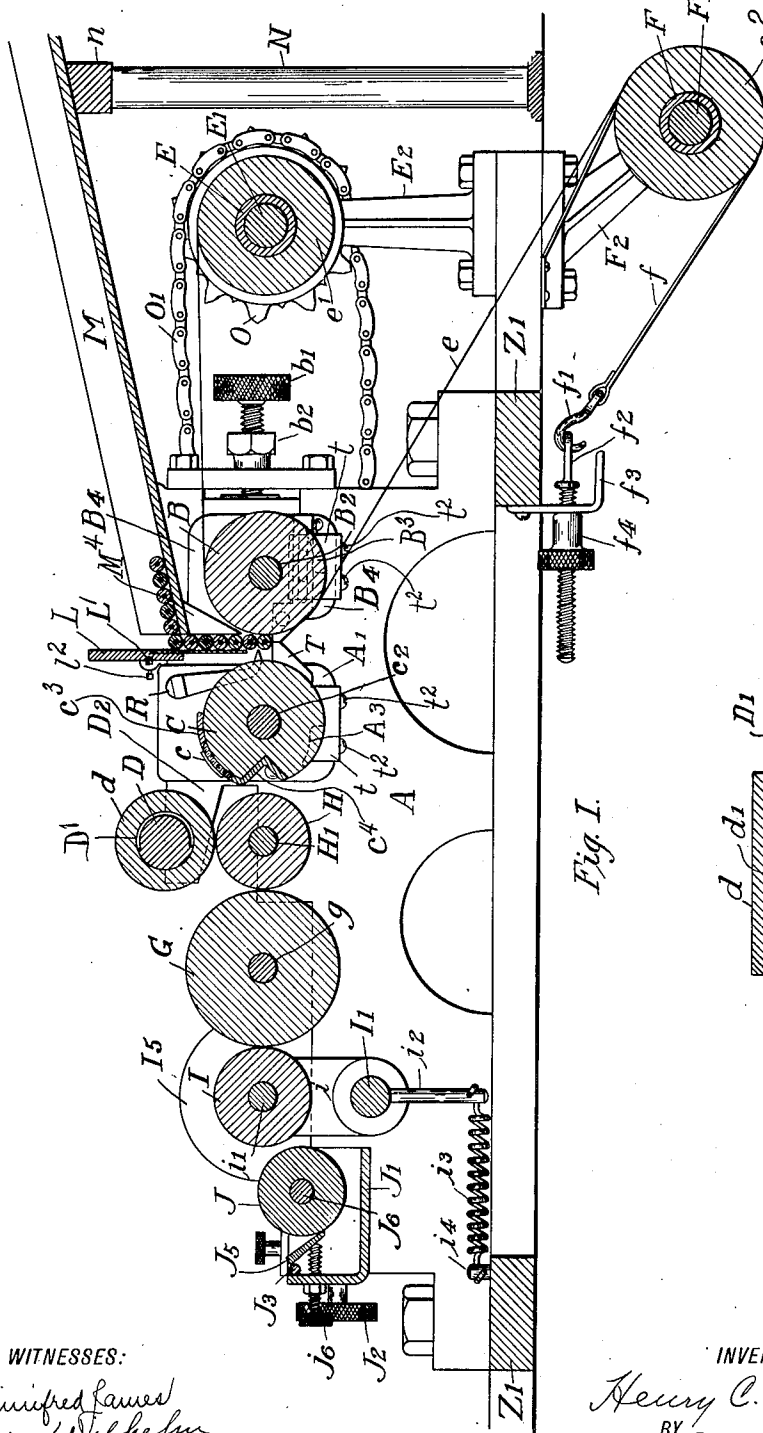


Fig. I.

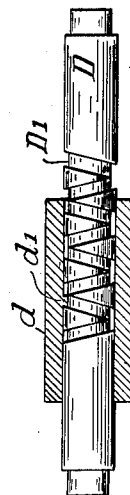


Fig. II.

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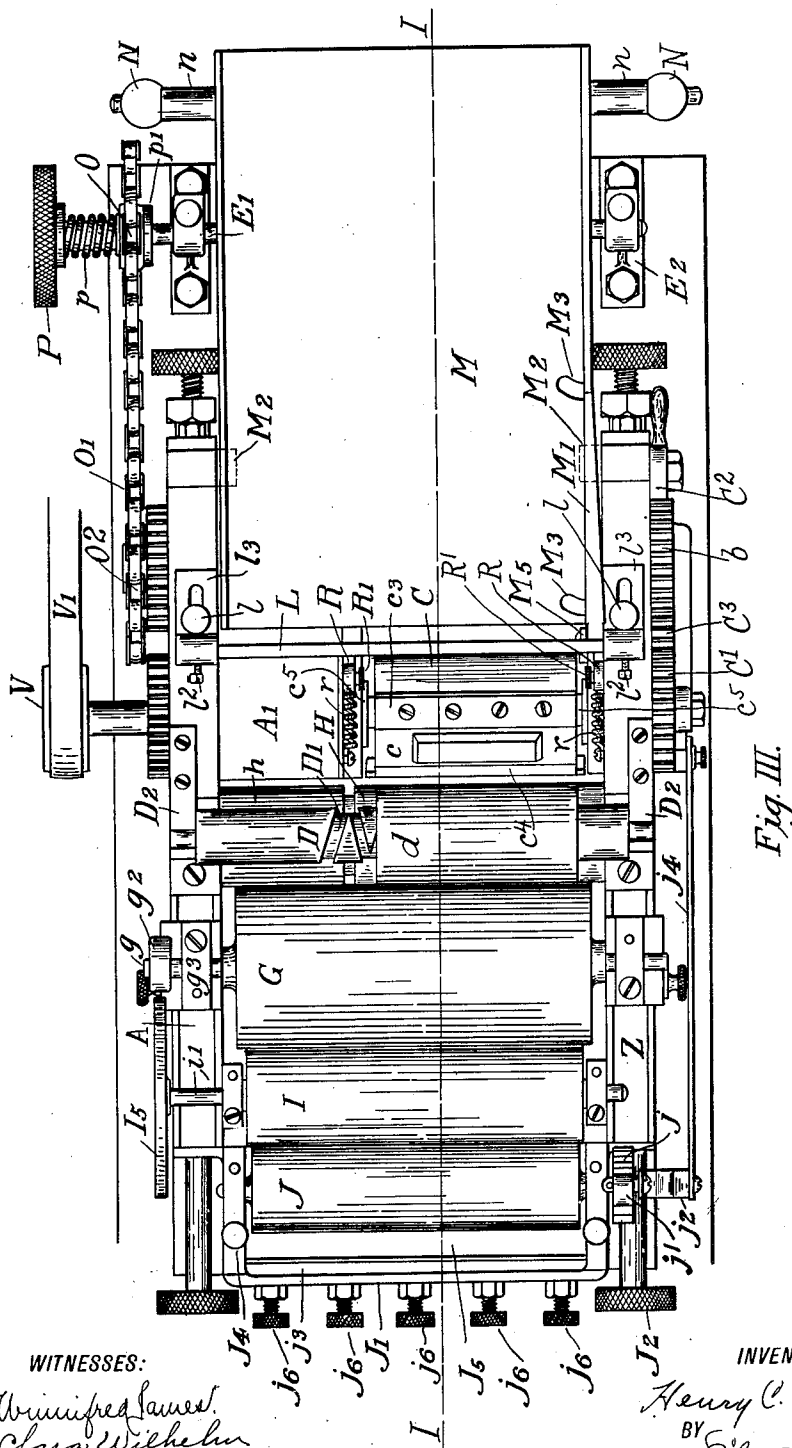
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4 SHEETS—SHEET 2.



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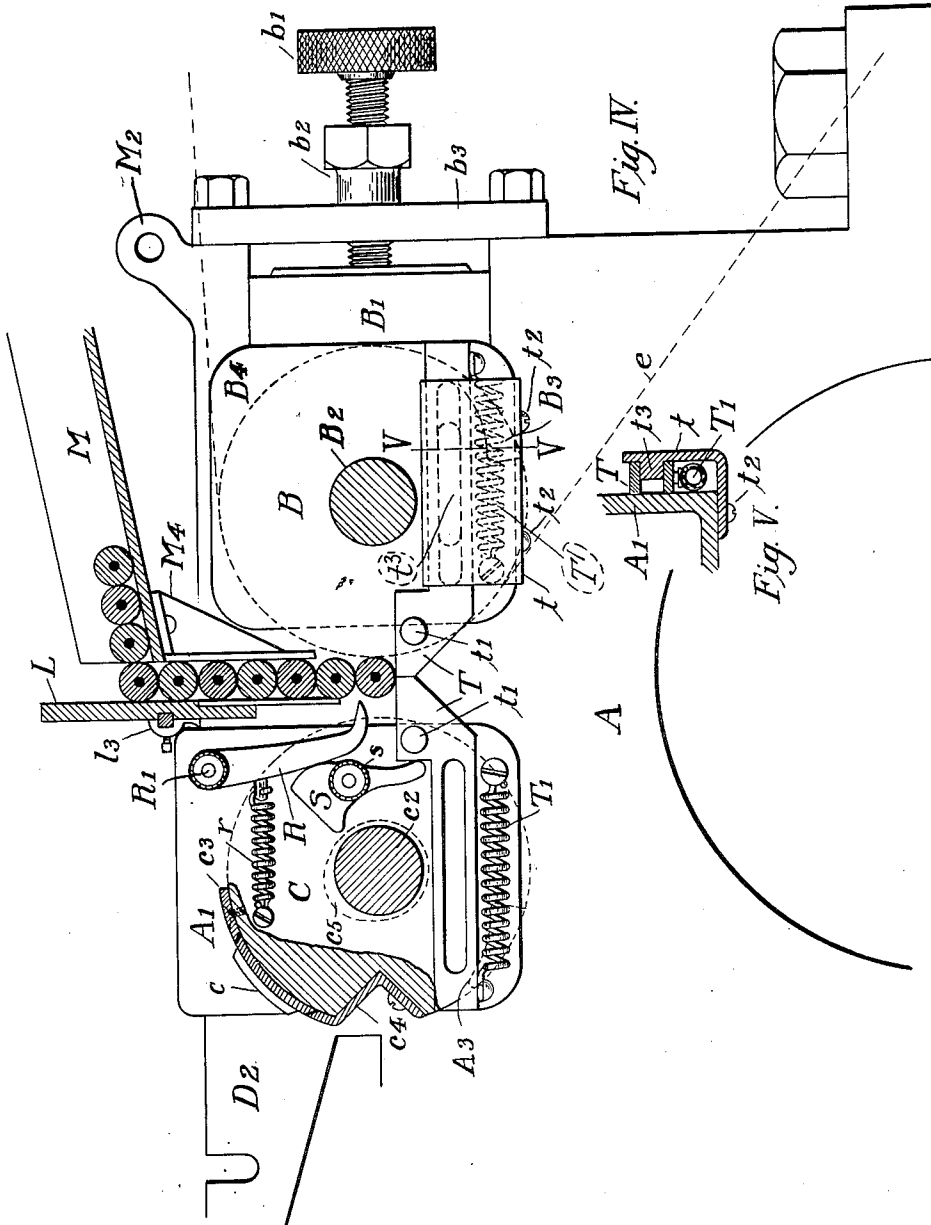
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4 SHEETS—SHEET 3.



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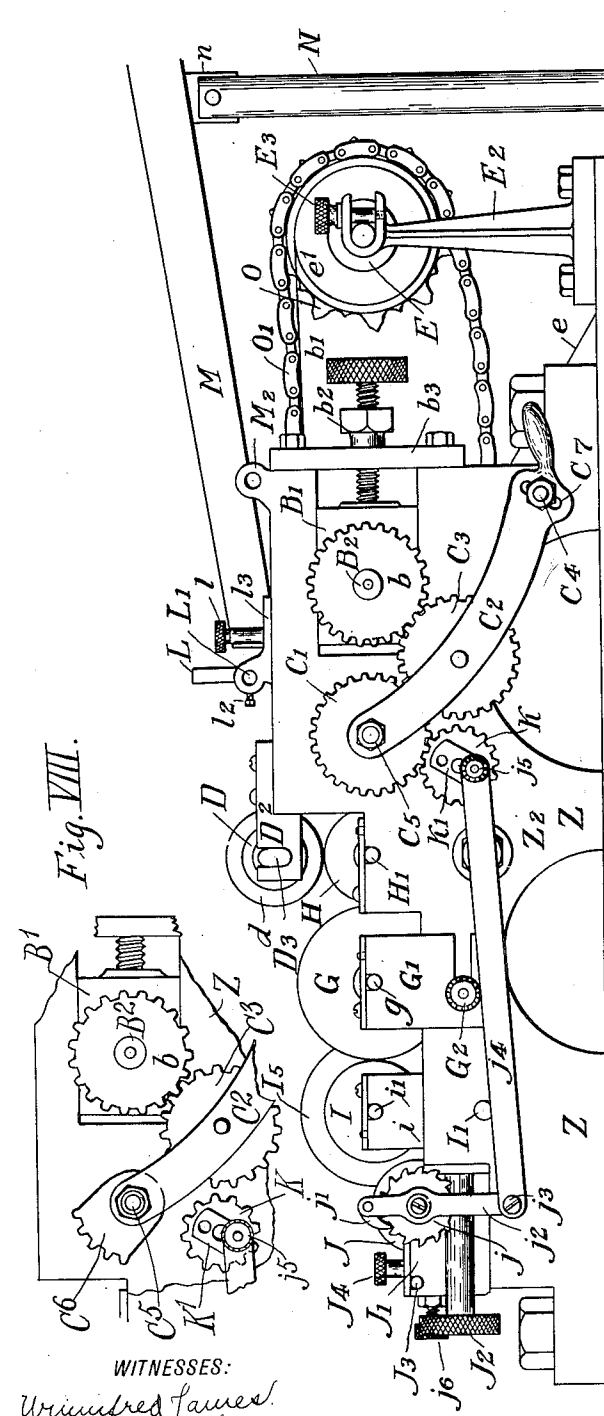
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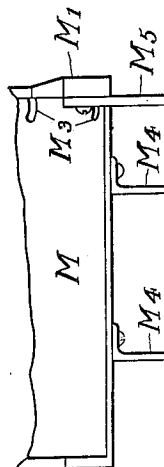
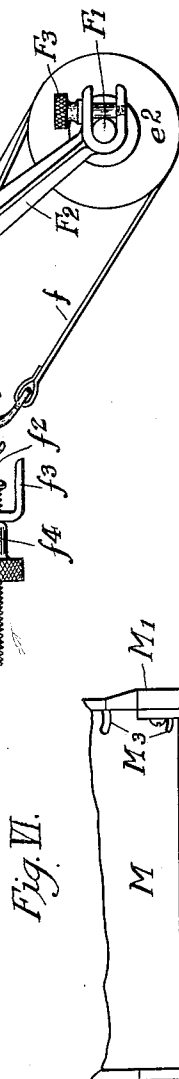
APPLICATION FILED MAR. 26, 1907.

4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

HENRY C. BIETTE, OF TORONTO, ONTARIO, CANADA.

PENCIL-PRINTING MACHINE.

No. 879,849.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed March 26, 1907. Serial No. 364,741.

To all whom it may concern:

Be it known that I, HENRY C. BIETTE, a subject of the King of England, residing at Toronto, in the Province of Ontario, Canada, have invented a new and useful Pencil-Printing Machine, of which the following is a specification.

My invention relates to improvements in pencil printing machines in which the object to be printed is supported between a printing cylinder and an impression cylinder while being printed.

The objects of my invention are;—first, to avoid the use of any wiping or cleaning device for the cleaning of the impression cylinder; second, to provide a machine capable of operation at a high speed; third, to provide an automatic feeding and removing device; fourth, to provide a simple and effective device for distributing the ink. I attain these objects by the mechanism illustrated in the accompanying drawings in which

Figure I is a vertical longitudinal section of my improved pencil printing machine taken on the line I—I of Fig. III. Fig. II is a detail longitudinal section of the ink distributing sleeve showing its axle in elevation. Fig. III is a plan view of the machine. Fig. IV is an enlarged detail view of the feeding device showing the impression cylinder in dotted lines and the printing cylinder partly in dotted lines and partly in section, the casing secured to a block adjacent to the printing cylinder and the slide and spring as they appear when the casing is removed from the block in dotted lines. Fig. V is a detail transverse section of a sliding support and its casing taken on the line V—V of Fig. IV. Fig. VI is a side elevation of the machine. Fig. VII is an end view of the lower end of the feed rack; the upper end of the rack being broken away. Fig. VIII is a detail side elevation showing a modification.

A frame comprising two side pieces A, and Z, connected by cross pieces Z¹, is suitably secured to a bed or table.

Blocks A¹, and B¹, are secured on the inner side of the frame A, and bored out to admit the shafts c², and B², respectively, the openings in A¹, and B¹, being large enough to allow space for the adjustment of the shafts c², and B².

One end of the shaft c², is mounted in a bearing formed in the frame A, and the opposite end passes through a bearing in the frame Z, and has rigidly secured thereto, a

cog wheel C¹, or segmental gear C⁶, see Fig. VIII. This end of the shaft also passes through one end of a lever C², and is threaded to receive a lock nut C³, which holds the lever C². The opposite end of the lever C², is provided with a slot C⁷, which allows its adjustment upon a pin or bolt C⁴, upon which it is secured by a lock nut. The intermediate portion of the lever has a cog wheel C³, pivoted upon it which meshes with the cog wheel C¹, or the segmental gear C⁶, and also with a cog wheel b, mounted upon the end of the shaft B².

The shaft B², is mounted in blocks B¹, slidably mounted in the frames A, and Z, and adjusted by means of thumb screws b¹, passing through yokes b³, bolted to the side frames and secured by lock nuts b².

An ink roller H, is mounted upon a shaft H¹, which in turn is mounted in bearings in the side frames A, and Z, adjacent the printing roller C, and inks the printing plate c, with each rotation of the printing cylinder C.

An axle D, is rigidly mounted in blocks D², one of which is secured to each of the side frames A, and Z. The axle D, is provided with a continuous, reversed spiral groove D¹, which receives a pin d¹, secured to or formed integral with a sleeve d, which revolves upon the axle D, and is driven by contact with the ink roller H.

The distributing drum G, is secured upon a shaft g, which is mounted upon adjustable blocks G¹, which in turn are mounted upon and secured to the side frames A, and Z, respectively by set screws G². This drum is also driven by contact with the ink roller H, and is supplied with ink by intermittent contact with a feed roller I, secured upon a shaft i¹, mounted in blocks i, which are secured to a pivot shaft I¹, pivoted in the side frames A, and Z.

An arm i², extends downward from the pivot shaft I¹, to which it is rigidly secured and its lower end is secured to one end of the coiled extension spring i³. The other end of the spring is secured to a cross piece Z¹ of the side frame by a pin i⁴. This spring holds the roller I in contact with the drum G, except when they are forced out of contact by the cam g², mounted on the end of the shaft g, coming in contact with the wheel I³, mounted upon the end of the shaft i¹ of the feed roller I. The cam g², rocks the roller I, upon its pivot I¹, to contact with the fountain roller J, which is rigidly secured to a shaft J⁸,

which is mounted in bearings in the side frames A and Z.

An ink fountain is formed by the blade J⁵, held in contact with the fountain roller J, by the rod J³, rigidly secured to the side frames A, and Z, and the thumb screws j⁶. The thumb screws j⁶, are secured by and pass through a casing J¹, secured to the side frames A, and Z.

The ratchet wheel j, is mounted upon one end of the shaft J⁶, and is operated by a pawl or dog j¹, pivoted in the upper end of a lever j², which is loosely secured to the shaft J⁶, by a set screw. The opposite end of the lever j², is pivoted by a pivot j³, to one end of a link j⁴, the other end of which is secured by a set screw j⁵, to a block K¹, formed upon or secured to a cog wheel K, pivotally secured to the side frame Z, and meshing with the cog wheel C¹, or the segmental gear C⁶.

One end of the shaft c², is extended through the side frame A, and carries a belt wheel V, carrying a belt V¹, which drives the machine. One end of the shaft B², passes through the side frame A, and has secured thereto a sprocket wheel O², which drives a sprocket chain O¹, which in turn drives a sprocket wheel O, secured upon one end of the shaft E¹, mounted in supports E², and carrying a roller E, upon which a roll e' of paper e, is wound. The sprocket wheel O, is loosely mounted upon the shaft E¹. A compression coiled spring p, is mounted upon the shaft E¹, outside of the sprocket wheel O, and is held in contact with the hub of the sprocket wheel O, by a thumb screw P, which screws into a threaded hole drilled in the end of the shaft E¹.

The feed roll e² of paper e, is wound upon the sleeve F, which is mounted upon a shaft F¹, which in turn is mounted in depending supports F², secured to the underside of the table or bed. An adjustable tension is maintained upon the feed roll by a brake strap f, which passes around a wheel rigidly secured upon the shaft F¹, and has one end secured to the side frame A, and the other end formed into a loop provided with a hook f¹, engaging the eye of an eye bolt f², adjustably secured by a thumb nut f⁴, to a bracket f³, formed upon or secured to one of the cross pieces Z¹.

A feed rack M, has its upper end secured upon a cross bar n, having its edges pivoted in the upper ends of supporting posts N, but the side of the lower end of the feed rack rests upon and is supported by projections M², formed upon the side frames A and Z. The feed rack is provided with side rails and the lower section of one side rail M¹, is made adjustable being formed with blocks upon its under side sliding in grooves M³, formed in the bed of the feed rack and held in place by gravity or by suitable fastenings. The lower end of the movable section M¹, has an arm M⁶, depending from it, forming an end guide

for the pencils. Tri-angular pieces of metal M⁴, are secured to the under side of the lower end of the feed rack M, and form guides for the pencils.

A guide plate L, is secured to a rod L' rigidly mounted upon the side frames A, and Z.

The printing cylinder C, carries a printing plate c, secured to its circumference by the longitudinal strips c³, and c⁴, each with a beveled edge which fits over corresponding beveled edges of the printing plate.

A cam c⁵, is formed upon each end of the printing cylinder, and at each rotation of the cylinder each cam comes in contact with an arm of an irregular shaped lever S, pivoted by set screw s, upon the side frame Z, and the block A¹, adjacent the respective ends of the printing cylinder.

The action of the cams c⁵, upon the levers S, throws the lower ends of levers R, pivoted upon the side frame Z, and block A¹, respectively, by set screws R¹, out and into contact with the lead pencils between the guides, holding all of the pencils except the one being printed so as to leave the pencil being printed free to revolve without contact with any other pencil, thus avoiding any smearing of ink upon the other pencils from the one being printed.

When a pencil comes between the guide plates L, and M⁴, to be printed, each end rests upon the jaws of two slides T. The slides at one end are secured to the side frame Z, and the slides near the other end are secured to the blocks A¹, and B⁴, respectively. All four of these slides are of similar construction and are similarly operated so that a description of one slide and its operation will apply equally to all of them. An angular casing t, shown in section in Fig. V is secured to each of the blocks A¹, and B⁴, by screws t². The upper arm of the casing t, is provided with a rib t³. A slide T, having a longitudinal slot is slidingly mounted upon the rib t³, having one end extended to form a support for the pencils while being printed. On the inner side of each extended end, a circular lug or projection t¹, is formed which is engaged by cams shown in Fig. IV as A³ and B³, formed upon the adjacent ends of the printing cylinder and the impression cylinder respectively. The contact of the cams with the lugs t¹, opens the jaws of the slides, and allows the printed pencil to drop into a tray or rack below. As the jaws open they throw back the lower ends of the levers S, thus bringing the lower ends of the levers R, in contact with the lower pencil between the guide plates and preventing it from falling until the jaws of the slides T, close, when the lower ends of the levers R, are returned to position by the tension springs r, one end of which is secured to the levers R, and the other end secured to the adjacent block or side frame. Each slide T, has at-

tached to it one end of a coiled spring T¹, the other end of the spring being secured to the adjacent block or side frame.

In the use of machines of this class heretofore manufactured, the impression roller has received the offset from the printed pencils and means have been employed to remove the ink from the impression cylinder. In my machine, the use of the paper effectually obviates any necessity for cleaning the impression cylinder.

By using the segmental gear C⁶, shown in Fig. VIII in the place of the cog wheel C¹, the impression roller and other parts of the machine will be driven only while the pencil is being printed thus saving wear and power.

In operation, the pencils are placed in the feed rack M, and fed down between the guide plates L, and M⁴, until the lower pencil rests upon the extended ends or jaws of the slides T. As the printing-cylinder revolves, the cams c⁵, bear upon the levers S, and force the lower ends of the levers R, against the pencil next above the one resting on the jaws of the slide until the printing plate has printed the pencil resting upon the jaws. As the pencil is being printed it is rotated by the pressure of the printing plate traveling downward and the pressure of the paper traveling upward supported by the impression cylinder. The jaws are then separated by the cams A³, and B³, shown in dotted lines in Fig. IV and the printed pencil allowed to drop into the rack or tray. As the jaws of the slides T, are returned to position by the springs T¹, the levers R, are drawn back by the springs r, and another pencil allowed to fall upon the jaws and the operation repeated. The inking roller H, is partially rotated by each contact with the printing plate c, and in turn drives the sleeve d, and the drum G. When the sleeve d, has reached either end of its longitudinal travel, it is returned by the pressure of the sides of the reversed spiral groove D¹, upon the pin d¹. The drum G, drives the ink feed roller I, when in contact and the cam g², coming in contact with the wheel I⁵, throws the feed roller I, intermittently into contact with the fountain roller J. The pawl j¹, operating on the ratchet wheel j, turns the fountain roller enough to furnish the fresh ink supply. As each pencil is printed, the travel of the sprocket chain O¹, takes up the slack in the paper. The tension of the spring p, is so adjusted that the sprocket wheel O, will slide rather than tear the paper e, and the tension upon the paper feed roller is adjusted by the thumb screw f¹.

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

1. In a printing machine, the combination with an impression cylinder and a printing cylinder arranged side by side and adapted

to intermittently rotate round articles fed between them, of two pair of transversely operating opposed sliding supports adapted to sustain such articles while being printed.

2. In a printing machine, the combination with an impression cylinder and a printing cylinder arranged side by side and adapted to intermittently rotate round articles fed between them, of two pairs of transversely operating opposed sliding supports adapted to sustain such articles while being printed, and drop them after being printed.

3. In a printing machine, the combination with an impression cylinder journaled in a frame, a printing cylinder journaled in the frame adjacent and substantially parallel with the impression cylinder, adapted to impart an intermittent rolling motion to round articles fed between the cylinders, and two pairs of transversely operating opposed reciprocating supports adapted to sustain such articles between the cylinders while being printed.

4. In a printing machine, the combination with an impression cylinder journaled in a frame, a printing cylinder journaled in the frame adjacent and substantially parallel with the impression cylinder, adapted to impart an intermittent rolling motion to round articles fed between the cylinders, and two pairs of transversely operating opposed reciprocating supports adapted to sustain such articles between the cylinders while being printed, and to drop the same as soon as the printing operation is concluded.

5. In a printing machine, the combination with an impression cylinder and a printing cylinder journaled in a frame side by side, of two pairs of transversely operating opposed sliding supports arranged to sustain the articles to be printed between the cylinders while being printed and to drop them after being printed, and means for driving the printing cylinder continuously and the impression cylinder intermittently at the same speeds and in the same direction.

6. In a printing machine, the combination with an impression cylinder and a printing cylinder arranged side by side and adapted to intermittently rotate round articles fed between them, of two pairs of transversely operating opposed sliding supports adapted to sustain such articles while being printed, and means for passing a web of material over the impression cylinder and preventing the ink upon such round articles from offsetting upon the impression cylinder.

7. In a printing machine, the combination with an impression cylinder and a printing cylinder arranged side by side and adapted to intermittently rotate round articles fed between them, of two pairs of transversely operating opposed sliding supports adapted to sustain such articles while being printed, and drop them after being printed, and

means for passing a web of material over the impression cylinder and preventing the ink upon such round articles from offsetting upon the impression cylinder.

5 8. In a printing machine, the combination with an impression cylinder journaled in a frame, a printing cylinder journaled in the frame adjacent and substantially parallel with the impression cylinder, and adapted to
10 impart an intermittent rolling motion to round articles fed between the cylinders, two pairs of transversely operating opposed reciprocating supports adapted to sustain
15 such articles between the cylinders while being printed, and means for passing a web of material over the impression cylinder and preventing the ink upon such articles from offsetting upon the impression cylinder.

9. In a printing machine, the combination with an impression cylinder journaled in a frame, a printing cylinder journaled in the frame adjacent and substantially parallel with the impression cylinder, and adapted to
20 impart an intermittent rolling motion to round articles fed between the cylinders, two pairs of transversely operating opposed reciprocating supports adapted to sustain
25 such articles between the cylinders while being printed, and to drop the same as soon as the printing operation is concluded, and means for passing a web of material over the impression cylinder and preventing the ink upon such articles from offsetting upon the impression cylinder.

35 10. In a printing machine, the combination with an impression cylinder and a printing cylinder journaled in a frame side by side, of two pairs of transversely operating opposed sliding supports arranged to sustain
40 the articles to be printed between the cylinders while being printed and to drop them after being printed, means for driving the printing cylinder continuously and the impression cylinder intermittently at the same
45 speeds and in the same direction, and means for passing a web of material over the impression cylinder and preventing the ink upon such articles from offsetting upon the impression cylinder.

50 11. In a printing machine, the combination with an impression cylinder and a printing cylinder arranged side by side and adapted to intermittently rotate round articles fed between them, of a printing plate secured
55 upon the printing cylinder, means for inking the printing plate and two pairs of trans-

versely operating opposed sliding supports adapted to sustain such articles while being printed.

12. In a printing machine, the combination with an impression cylinder and a printing cylinder arranged side by side and adapted to intermittently rotate round articles fed between them, of a printing plate secured upon the printing cylinder, means for inking
60 the printing plate, two pairs of transversely operating opposed sliding supports adapted to sustain such articles while being printed, and drop them after being printed.

13. In a printing machine, the combination with an impression cylinder journaled in a frame, of a printing cylinder journaled in the frame adjacent and substantially parallel with the impression cylinder adapted to
70 impart an intermittent rolling motion to round articles fed between the cylinders, a printing plate secured upon the printing cylinder, means for inking the printing plate and two pairs of transversely operating opposed reciprocating supports adapted to sustain
75 such articles between the cylinders while being printed.

14. In a printing machine, the combination with an impression cylinder journaled in a frame, of a printing cylinder journaled in the frame adjacent and substantially parallel with the impression cylinder adapted to
80 impart an intermittent rolling motion to round articles fed between the cylinders, a printing plate secured upon the printing cylinder, means for inking the printing plate, and two pairs of transversely operating opposed sliding supports adapted to sustain
85 such articles while being printed, and to drop the same as soon as the printing operation is concluded.

15. In a printing machine, the combination with an impression cylinder and a printing cylinder journaled in a frame side by side, of two pairs of transversely operating
90 opposed sliding supports arranged to sustain the articles to be printed between the cylinders while being printed, and to drop them after being printed, a printing plate secured upon the printing cylinder, and means for
95 driving the printing cylinder continuously and the impression cylinder intermittently at the same speeds and in the same direction.

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Witnesses:

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