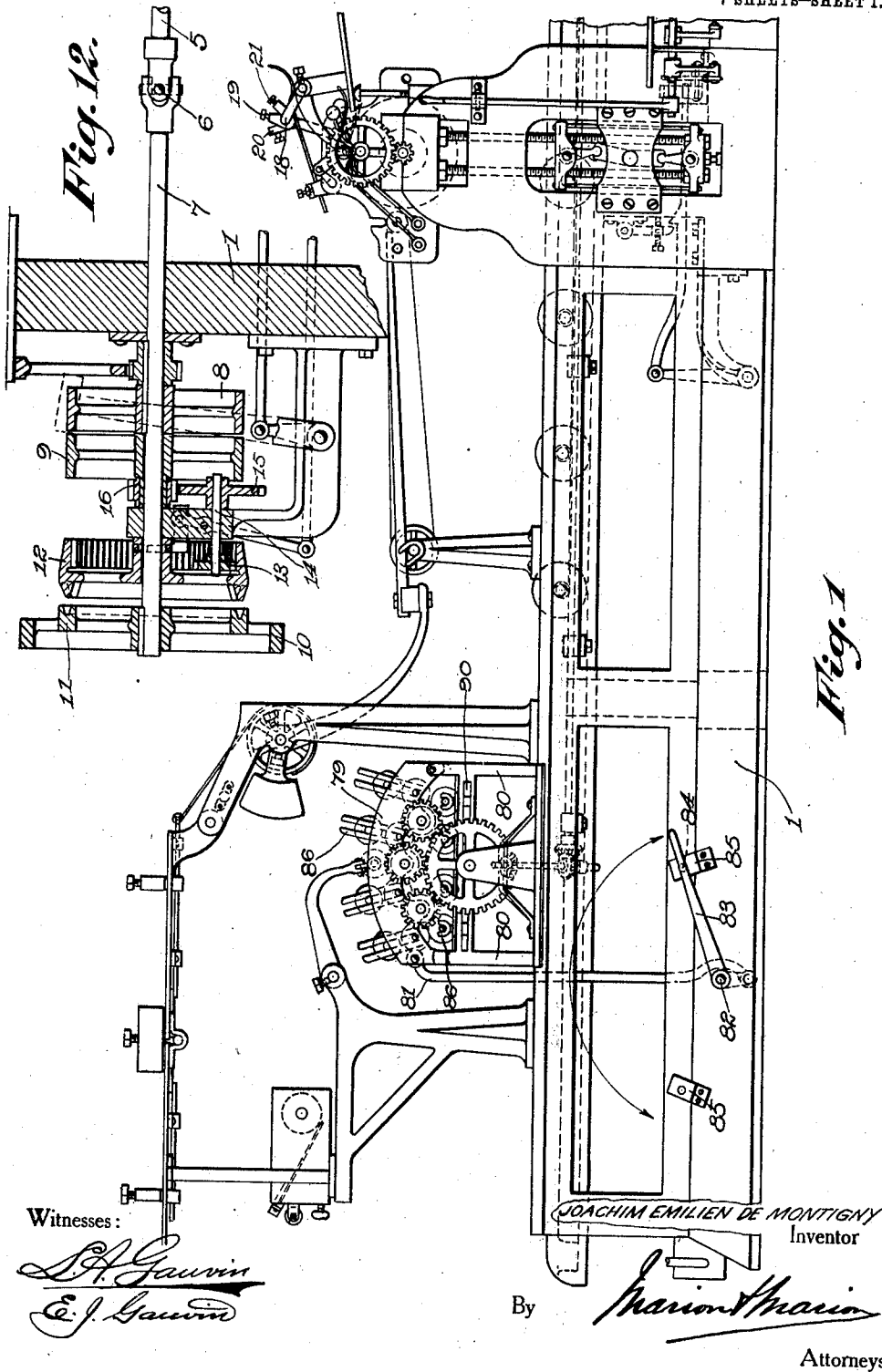


J. E. DE MONTIGNY.
THREE COLOR JOB PRINTING PRESS.
APPLICATION FILED SEPT. 9, 1910.

1,002,299.

Patented Sept. 5, 1911.

7 SHEETS—SHEET 1.



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7 SHEETS—SHEET 2.

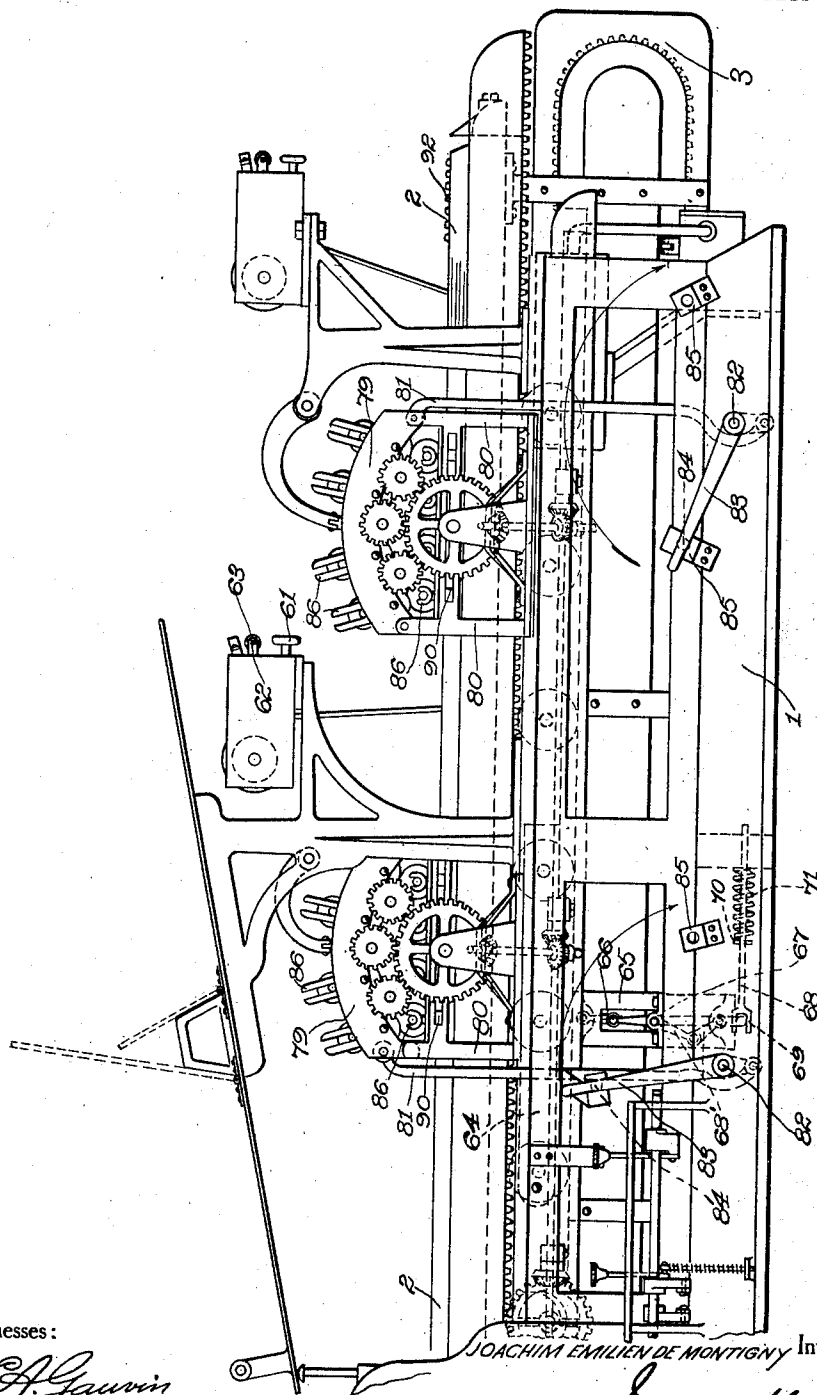


Fig. 2

Witnesses:

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By

Marion Marion

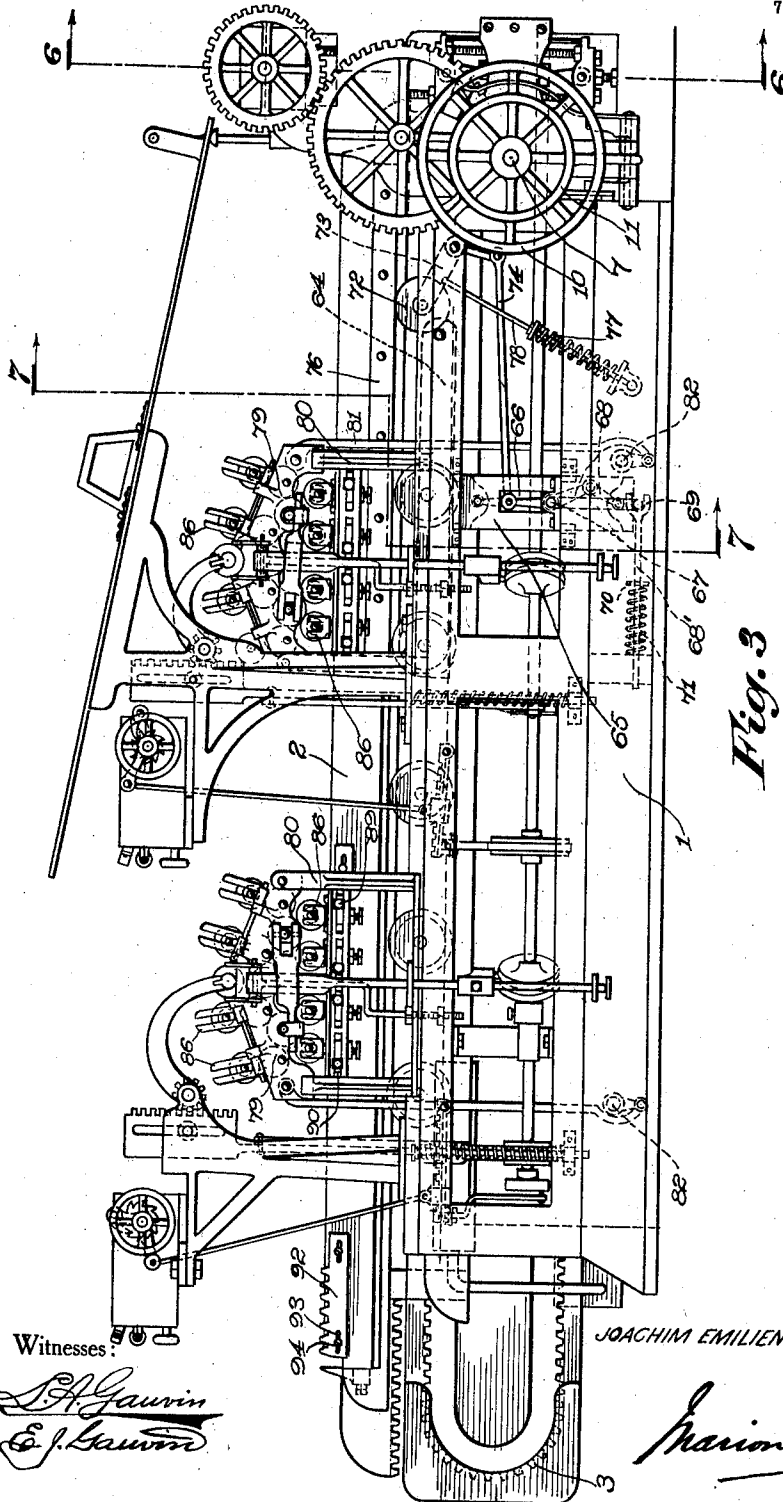
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7 SHEETS—SHEET 3.



Witnesses:

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7 SHEETS—SHEET 4.

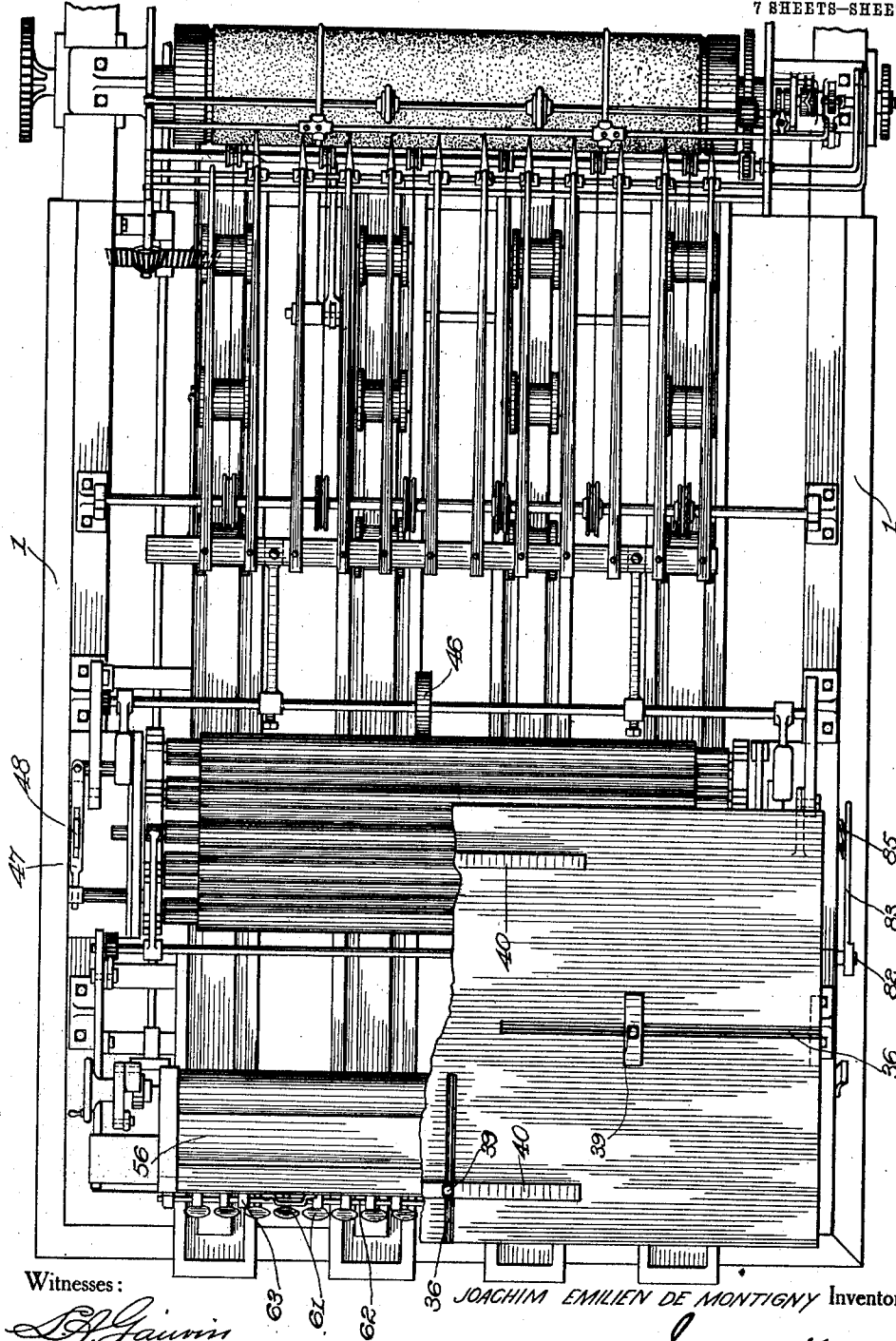


Fig. 4

Witnesses:

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7 SHEETS—SHEET 5.

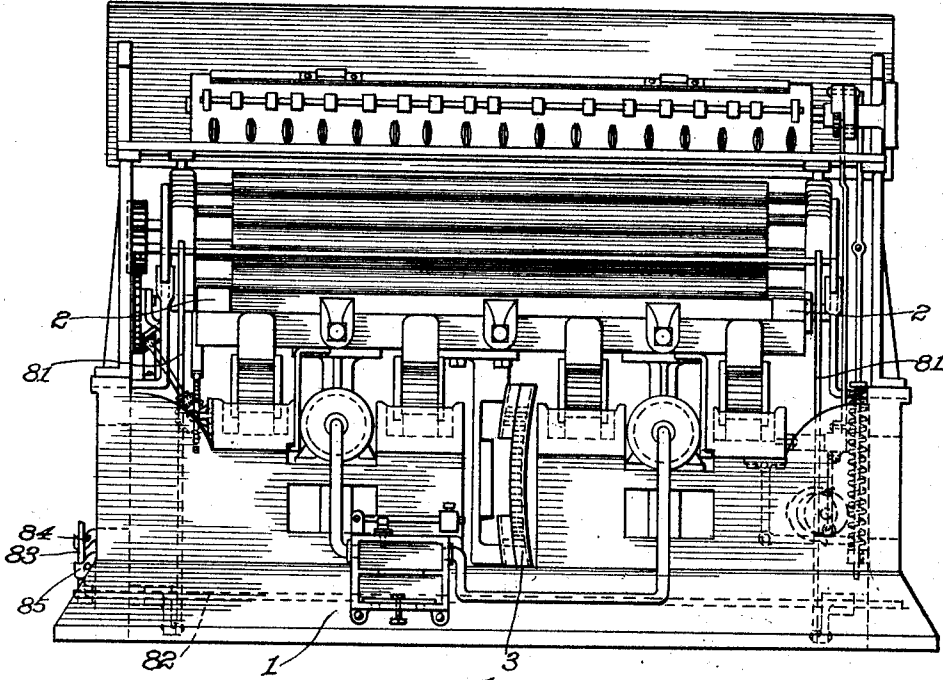


Fig. 5

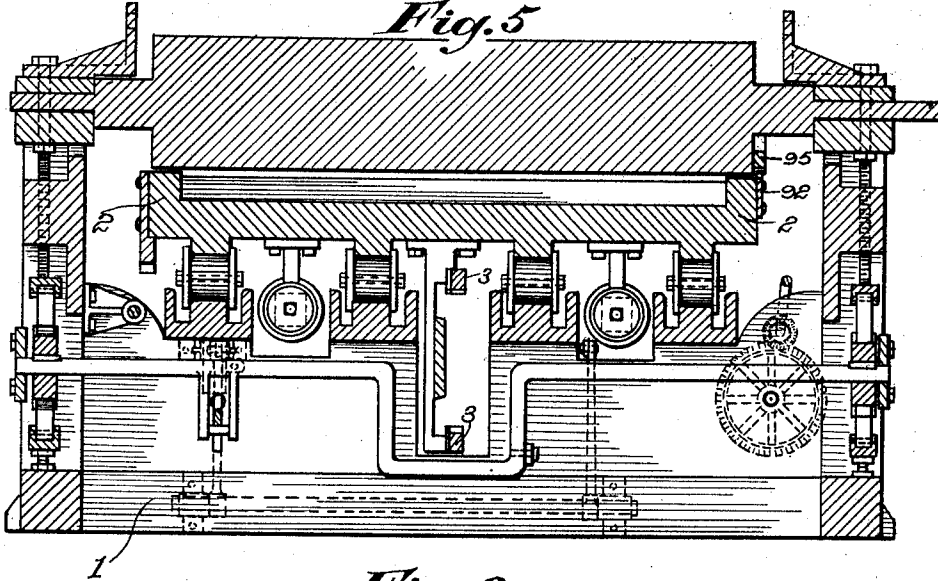


Fig. 6

Witnesses:
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1,002,299.

Patented Sept. 5, 1911.

7 SHEETS—SHEET 6.

Fig. 7

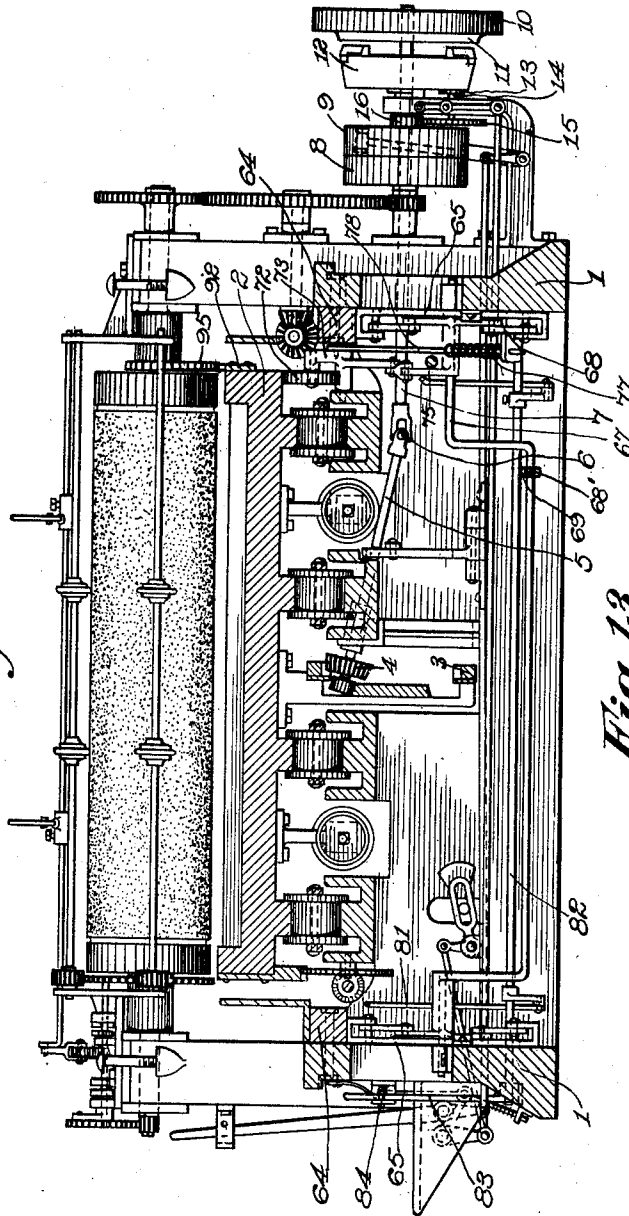
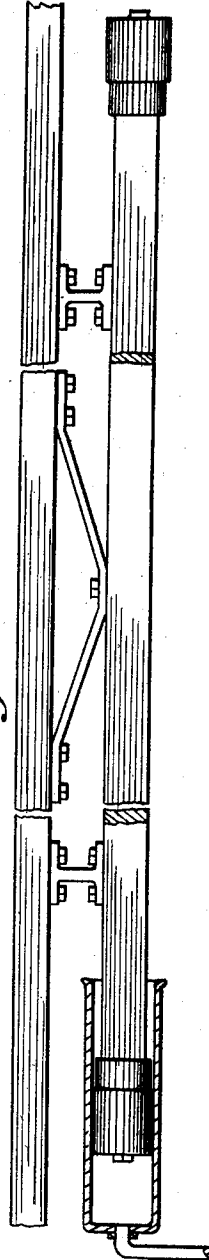


Fig. 13



Witnesses:

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1,002,299.

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7 SHEETS—SHEET 7.

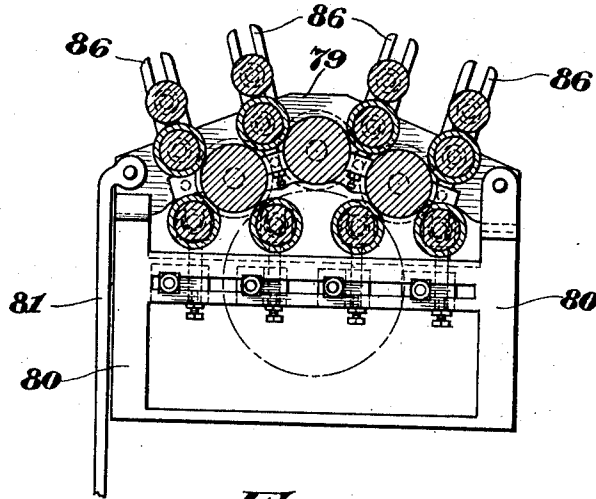


Fig. 8

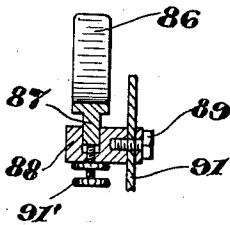


Fig. 11

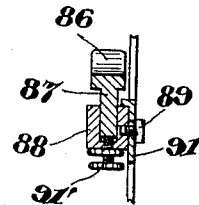


Fig. 10

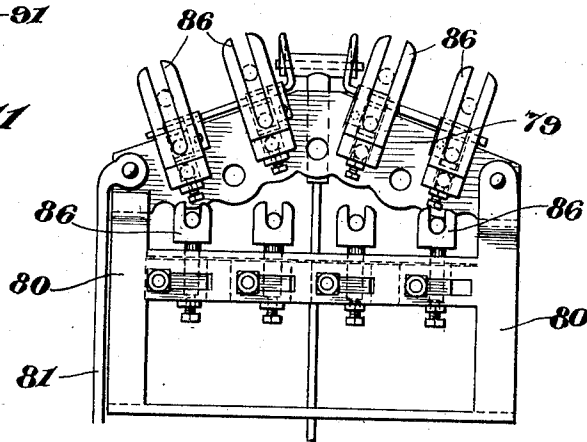


Fig. 9

Witnesses:

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UNITED STATES PATENT OFFICE.

JOACHIM E. DE MONTIGNY, OF MONTREAL, QUEBEC, CANADA.

THREE-COLOR JOB-PRINTING PRESS.

1,002,299.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed September 9, 1910. Serial No. 581,282.

To all whom it may concern:

Be it known that I, JOACHIM EMILIEN DE MONTIGNY, a subject of the King of England, residing at Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Three-Color Job-Printing Presses; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to printing machines and more particularly to job printing presses of the reciprocal bed type.

The main purpose of the invention is to provide a simply constructed, compact, and automatic machine adapted to print in three separate and distinct colors, with the use of a single impression roller, only.

In order to more clearly disclose the construction, operation, and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings like reference characters designate the same parts.

In the drawings: Figure 1 is a left hand side elevation of one half of the machine, including the impression roller; Fig. 2 is a similar view of the remainder of the machine; Fig. 3 is a right hand side elevation of Fig. 2; Fig. 4 is a top plan view of Fig. 3; Fig. 5 is a left hand end view of Fig. 3; Fig. 6 is a vertical cross sectional view on line 6-6 of Fig. 3, looking in the direction of the arrows; Fig. 7 is a vertical cross section on line 7-7 of Fig. 3, looking in the direction of the arrows; Fig. 8 is a central vertical cross section, through one complete set of inking rollers, detached; Fig. 9 is an end elevation of the supporting frame work of the rollers; Fig. 10 is a sectional detail view of one of the supporting blocks for the rollers; Fig. 11 is a view similar to Fig. 10, but showing a support adapted to hold a double tier of rollers; Fig. 12 is an enlarged central vertical cross section through the driving mechanism; and Fig. 13 is a side elevation of the carriage for the printing bed.

Referring to the drawings in detail, 1 indicates a supporting frame of any desired

construction. In this frame is reciprocally mounted the bed 2 provided with an endless rack 3 adapted to be engaged and driven by a pinion 4 on the end of a shaft 5 flexibly connected by a universal joint or coupling 6 to the inner end of a power shaft 7. On this power shaft are mounted a fast pulley 8 and a loose pulley 9. To the outer end of the shaft is keyed a fly wheel 10 provided with a clutch base 11 adapted to coöperate with a ring clutch 12 slidably and revolvably mounted on the shaft 7. The interior surface of the clutch 12 is provided with an annular gear having teeth of very considerable length adapted to have longitudinally sliding engagement with the teeth of a small pinion 13 journaled on a shaft 14 to the opposite end of which is fixed a gear 15 which meshes with and is driven by a pinion 16 forced on the hub of loose pulley 9. The ring clutch 12 may be moved to and from engagement with the fly wheel by any suitable and well known, treadle operated, lever, rod, and yoke connections, as shown. When the ring clutch 12 and clutch base 11 are engaged, rotation of the ring clutch will cause rotation of shaft 7. However, the pulley 9 will have to be driven in the opposite direction to that of pulley 8, in order to cause rotation of shaft 7 in the same direction. The driving belt may be shifted from one pulley to the other by any well known belt shifter, operated through suitable connections from the same side of the machine as that from which the ring clutch is operated.

The impression roller is operated from the driving shaft through the usual train of gears, in the well known manner. The paper clips for holding the paper to the face of the impression roller, and the mechanism for operating these clips are all of well known construction.

The paper retaining arm for retaining the paper on the inclined delivery plate, and the means for operating the same are well known. Likewise, the paper stopping fingers and the means for operating the same. The devices for holding the surface of the sheet snug and smooth against the surface of the roller, the devices for guiding the sheet to the take-off, the take-off, itself; and the several mechanisms and connections for operating these devices are all well known.

It is, therefore, unnecessary to enter into a detailed description of any of the parts mentioned in this paragraph.

The main feature of the machine is that of printing on the same sheet, in three separate, distinct, and independent colors. This requires three separate and independent sets of inking rolls with all cooperating parts. Furthermore, it requires the arrangement or disposition of the same in such manner that each set will operate on its own particular block, plate, type or the like, only. To this end, one set is arranged close to each end of the frame. As the bed reciprocates, the inking rolls at one end will ink the block mounted on the end of the bed nearest to that set. As the bed moves in the opposite direction, the other set of rolls will ink the block mounted on the opposite end of the bed. The third set of rolls is mounted about half way between the center of the machine and one end. It is necessary, of course, that this third set shall be above the surface of the end block passing thereunder and yet come in contact with the middle block, as the bed reciprocates. Therefore, it must be vertically movable. Accordingly, it is mounted in side beams or bars 64 pivotally connected to the frame. Each of these beams is also connected to a bracket 65 provided with vertical slots 66 and slidably mounted in the frame of the machine. Extending laterally across the frame is a crank shaft 67 the opposite ends of which extend through the slots 66 and are journaled in suitable bearings or plates mounted in the frame. This shaft is connected by pairs of toggle levers 68 to the opposite ends of the brackets 65. Rocking of shaft 67, therefore, causes raising and lowering of the brackets 65 and the connected beams 64. In order to hold the inking rollers of this intermediate set normally inoperative or raised, a spring pressed rod 68' provided with a forked end 69 adapted to receive the crank of the shaft 67 and hold it in its lowered position, is provided. This rod is slidably mounted in the frame work of the machine and is provided with a pin, washer, or the like 70. About the rod and between the pin 70 and the beam, is arranged the coil spring 71 by which the rod 68' is held normally in forward or operative position. The lowering of these inking rollers should be effected automatically, of course. To that end, an actuating roller 72 has been provided. This roller is journaled in the end of one arm of a bell crank lever 73 which is fulcrumed in the frame work. The other arm is connected by a link 74 to an arm 75 extending from the crank shaft 67. The roller 72 is adapted to be engaged and depressed by cam plate or strip 76 projecting downwardly from the under face of the carriage of the printing bed. Depression of the roller, of

course, draws the middle set of inking rollers toward the printing bed on the traveling carriage. The cam plate or strip 76 is so positioned, relatively to the length of the carriage, of course, as to engage and depress the roller 72 just prior to the passage therebeneath of the block that is to be inked by such rollers. In order to raise the roller into the path of the cam or strip as soon as the strip passes back from above it, a coil spring 77 has been provided. This spring is disposed about a rod 78 between a collar thereon and a guide plate through which the lower end of the rod slides. The upper end of the rod is connected to the roller bearing arm of the bell crank lever.

It is often necessary to remove or renew one or more of the lower row of rollers of each set. Therefore, the remaining rollers of each set are mounted in bearing plates 79 pivoted at one end to the uprights 80 extending upwardly from the frame and resting freely at their opposite ends on like uprights. To the free ends of the bearing plates are connected the upper ends of lifting rods 81. The lower ends of these lifting rods are connected to the cranks of a crank shaft 82 journaled in the base of the frame. One end of the shaft 82 is provided with a lever handle 83 having a projecting pin 84 adapted to pass into a perforation in a spring clip 85. Two spring clips are provided for each lever, one adapted to hold it in raised, and the other in lowered position. When the bearing plates are raised, the lower rolls may be readily removed. In this connection it should be stated, that each of the rolls is removably seated in a U-shaped bearing block 86 provided with a shank 87 removably seated in a socket in a block 88 which is adjustably connected to the bearing plate 79, by means of a clamping screw 89 which is threaded into the side of the block 88. The shank of this screw is adapted to slide freely in the slot 90 of a plate 91 connecting the uprights 80. By tightening the screws 89, the blocks 88 may be clamped at any desired adjustment. Vertical adjustment of the bearings 86 is effected by set screws 91' threaded upward through the blocks 88 and engaging the lower end of shank 87.

It is necessary, of course, to have the impression cylinder and the bed move at exactly the same rate of speed while the blocks are passing under the cylinder. To this end, a rack section 92 is removably and adjustably secured to the frame of the bed at a point opposite each block. Each rack section is provided with longitudinal slots 93 adapted to receive the fastening screws 94. By adjusting the sections slightly, an exact intermesh of the rack teeth with the teeth of cooperating gear segments 95 on the impression roller may be assured.

It is thought that the construction and operation of the several parts of the invention will be clear from the preceding detailed description.

5 Changes may be made in the construction, arrangement, and disposition of the several parts of the invention without in any way departing from the field and scope of the same and it is meant to include all such
10 within this application wherein only a preferred form has been disclosed.

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

15 1. A printing machine of the character described comprising a frame, a carriage reciprocably mounted in the frame, a bed secured to the carriage and provided with
20 three separate printing blocks arranged at intervals, three separate sets of inking rolls mounted above the bed and each adapted to ink one of the blocks, toggle lever mechanism for raising the intermediate set of inking rolls, a cam plate secured to the afore-
25 said bed, a bell crank lever provided with a roller adapted to be engaged and depressed

by said cam plate, and a rod connecting said bell crank lever and said toggle lever mechanism.

2. A printing machine of the character 30 described comprising a frame, a carriage reciprocably mounted in the frame, a bed secured to the carriage and provided with three separate printing blocks arranged at
35 intervals, three separate sets of inking rolls mounted above the bed and each adapted to ink one of the blocks, toggle lever mechanism for raising the intermediate set of inking rolls, a cam plate secured to the afore-
40 said bed, a bell crank lever provided with a roller adapted to be engaged and depressed by said cam plate, a rod connecting said bell crank lever and said toggle lever mechanism, and means for holding said roller normally
45 in operative position.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOACHIM E. DE MONTIGNY.

Witnesses:

T. MYNARD,
E. J. GAUVIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."