

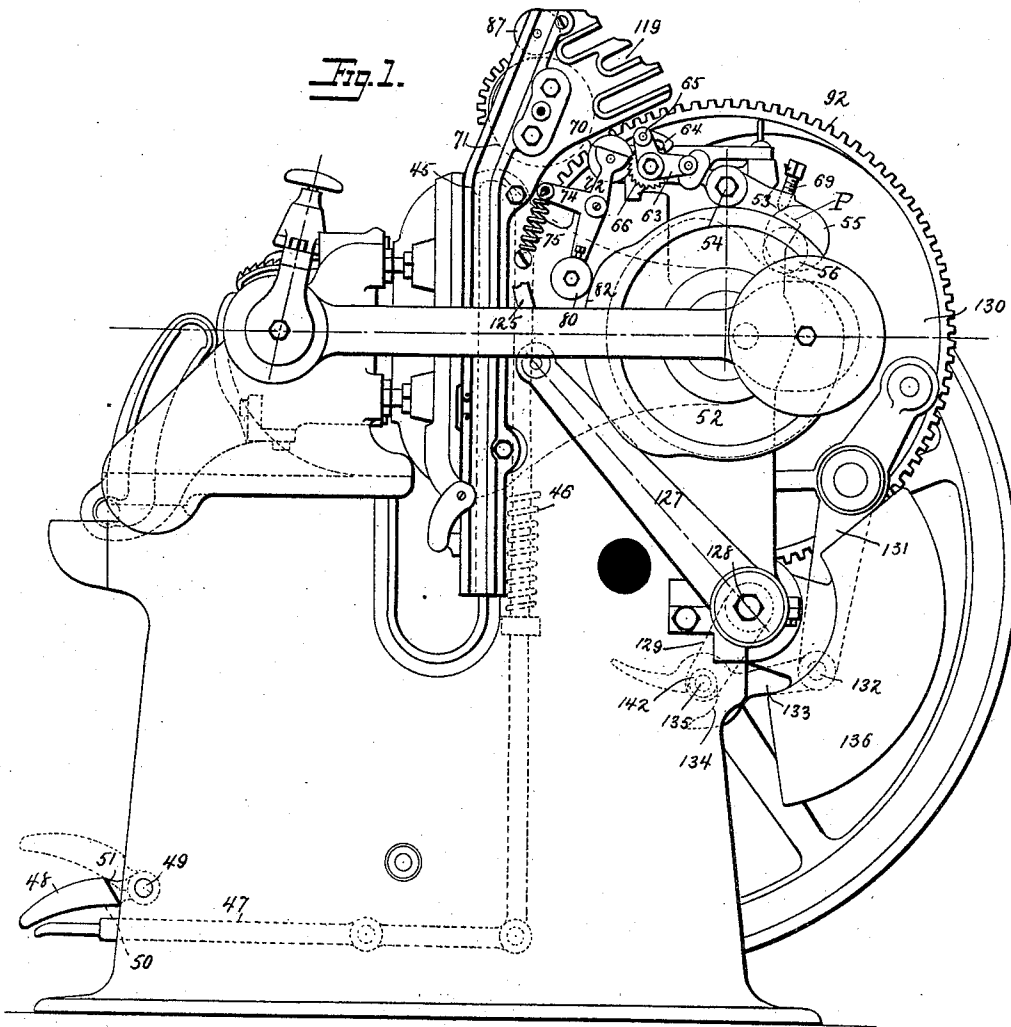
(No Model.)

2 Sheets—Sheet 1.

J. THOMSON.  
PRINTING PRESS.

No. 428,182.

Patented May 20, 1890.



Witnesses

*Geo. G. Hinkel Jr*  
*Sidney S. Johnson*

Inventor

*John Thomson*  
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Attorneys

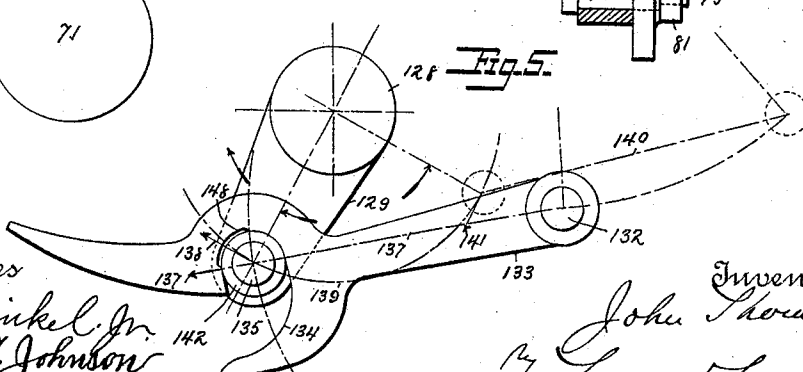
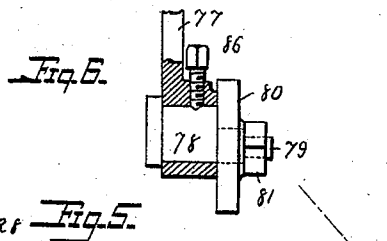
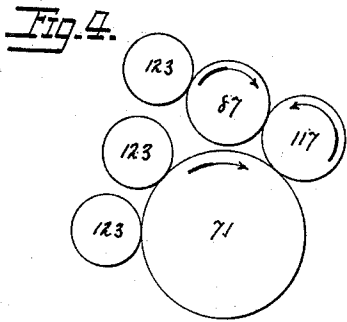
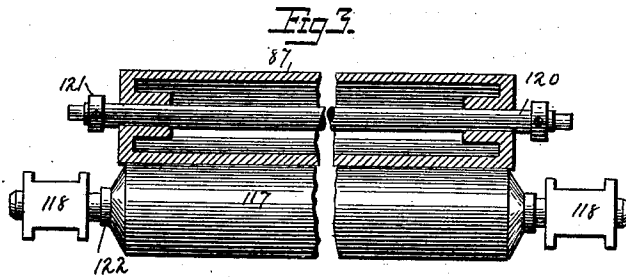
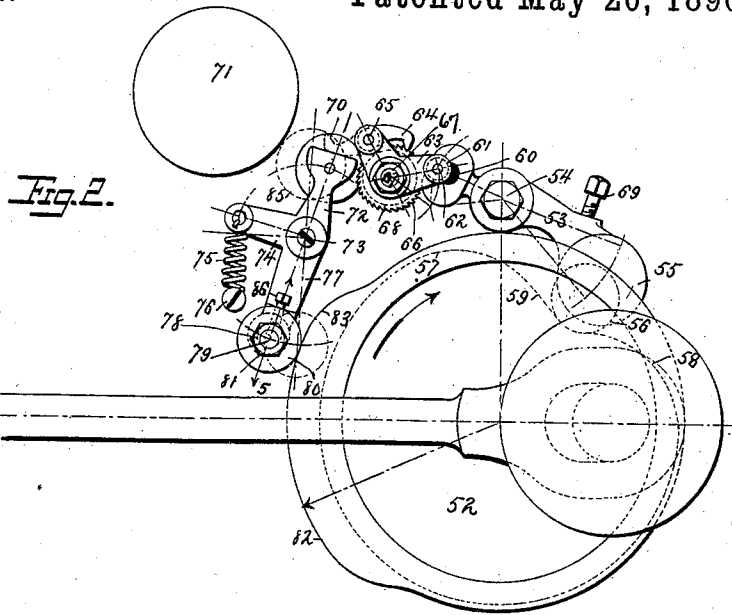
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2 Sheets—Sheet 2.

# J. THOMSON. PRINTING PRESS.

No. 428,182.

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Witnesses  
*Geo. G. Hinkel, Jr.*  
*Sidney S. Johnson*

Inventor  
*John Thomson*  
 By *Lucas Freeman*  
 Attorneys

# UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE COLT'S PATENT FIRE ARMS MANUFACTURING COMPANY, OF HARTFORD, CONNECTICUT.

## PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 428,182, dated May 20, 1890.

Application filed April 11, 1888. Serial No. 270,293. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN THOMSON, a citizen of the United States, residing at Brooklyn, Kings county, State of New York, have  
5 invented certain new and useful Improvements in Printing-Presses, of which the following is a full, clear, and exact specification.

My invention relates to bed and platen printing-presses.

10 In the drawings, Figure 1 is a right-hand side elevation of a press embodying my invention. Fig. 2 is a detail view of the apparatus for operating the ink-fountain. Fig. 3  
15 is an enlarged detail of small and secondary ink-cylinder, composition distributor, and boxes therefor. Fig. 4 is a diagram illustrating the rotative motions of the large and small ink-cylinders, intermediate composition distributor, and indicating the position of  
20 form-inking rollers. Fig. 5 is an enlarged detail view and strain diagram of the hook-connection which operates the carriage, and Fig. 6 is a detail section on line 5, Fig. 2.

I do not deem it necessary to fully describe  
25 in detail the construction and operation of the press shown in the drawings, as they will be readily understood by those skilled in the art, and I shall only refer to the parts shown that may be necessary to properly describe  
30 my present improvements.

The first part of my invention relates to a safety-guard for avoiding accidental operation of the chase-latch pedal, and is shown in  
35 Fig. 1. The chase-hook 45 is caused to clamp the chase against the bed by the spring 46, the hook being elevated, when desirable to remove the chase, by means of the pedal-lever 47, which is to be operated by the foot. The end of the lever, for convenience, must project  
40 beyond the front of the frame. It may therefore be accidentally depressed, and if thereby the chase is relieved from the engagement of the hook there is opportunity for damage. This, however, is entirely obviated by means of the pedal-guard 48, which  
45 is pivoted to the frame, as at 49, above the projecting end of the pedal-lever. The guard is provided with any suitable stop, as the offset 50, which contacts upon the frame so as  
50 to clamp the guard against depression, but is

arranged as at 51, so that when desirable to depress the pedal-lever the guard may be elevated by the foot to the position indicated by the dotted outline, when upon removing the foot the guard will automatically reset itself  
55 to the position shown.

Another part of the invention refers to the apparatus for operating the ink-fountain, and is shown in Figs. 1 and 2. The device is operated by means of the crank-wheel 52. The  
60 crank-wheel lever 53 is pivoted to the frame at 54, and its weighted end 55 is provided with a friction-roller 56, which rides upon the inside track 57 on the periphery of the wheel. It thus acts by gravity when following the  
65 declined side 58 of the depression, but is positively forced upward by the inclined side 59. The forward end of the lever is forked, as at 60, and engages a friction-roller 61, mounted upon a stud 62 in the ratchet-lever 63. This  
70 lever is in the form of a bell-crank, one extension engaging the fork, as described, and the other extension carrying a pawl 64, pivoted, as at 65, and adapted to engage the ratchet-wheel 66. The ratchet-lever is pivoted  
75 at 67 to a journal-bearing formed on the ink-fountain cylinder 68. The ratchet-wheel is also mounted on this bearing, but is fixedly secured thereto. It will now be seen that upon each revolution of the crank-wheel the  
80 crank-wheel lever will be vibrated and impart intermittent circular motion to the fountain-cylinder. The extent of the motion of the crank-wheel lever and consequent number of ratchet-teeth engaged by the pawl is limited  
85 by the adjusting-screw 69, which contacts upon a suitable projection P on the frame. The composition ductor-roller 70, which conveys the ink from the fountain-cylinder to the main ink-cylinder 71, is mounted in the  
90 vibrator-frame 72, pivoted to the main body of the frame at 73. To the right-angle extension 74 a spring 75 is attached, the other end of which is made fast to the body of the press, as at 76. The spring in the present  
95 instance acts downward by contraction. In the lower arm 77 of the vibrator-frame a short shaft 78 is mounted, having an eccentric-stud 79, which acts as a bearing for the friction-roller 80, secured to place by the nut 81. Upon  
100

the outer face of the periphery of the crank-wheel a cam 82 is formed, which, by reason of the contact of its inclined surface 83 with the roller 80, actuates the vibrator-frame against the tension of the spring and forces the ductor-roller into contact with the fountain-cylinder. This contact is maintained for a period equal to the greatest action of the crank-wheel lever when the spring carries the friction-roller along the declining surface 84 until the ductor-roller is in contact with the main cylinder, as indicated by dotted outline 85. The relation of the described movements are such that the ductor-roller is first brought into contact with the fountain-cylinder when the latter is operated to roll on a fresh supply of ink. The object of the eccentric-stud 79 is to afford means for adjustment to the ductor-roller. The stud is prevented from turning accidentally by the set-bolt 86. By partially unscrewing this bolt and then turning the shaft 78 the friction-roller will be carried toward or away from the crank-wheel in an obvious manner.

Referring particularly to Figs. 3 and 4, the action of the small or secondary ink-cylinder 87 will now be described. The composition distributing-roller 117 rotates in the detachable boxes 118, which are adapted to slide freely into the slots 119 of the carriage-ways. The relative positions of the main and secondary ink-cylinders 71 87 and the slot are such that this brings the said composition roller into contact with both cylinders. The secondary cylinder 87 is freely mounted upon a shaft 120, having two stop-collars 121, so that it is free to rotate and also to slide back and forth to the limit of the stops. The composition distributor is also provided with stop-shoulders 122, so that this roller is also free both to revolve in its boxes and to reciprocate to the limit of the shoulders. The said main cylinder reciprocates as well as rotates, in a manner well understood and shown in my patent, No. 372,993, November 8, 1887. Now, presuming that the extent of its reciprocation is, say .75 inch, that of the composition distributor .50 inch, and that of the secondary cylinder .25 inch, the consequence of this arrangement and construction will be that the main ink-cylinder acts as a driver, first, to the composition distributor, and thence by friction and adherence of ink to the secondary cylinder. Thus the main cylinder causes both the composition distributor and the secondary cylinder to rotate and also to differentially reciprocate. In this wise by a simple and positive action the ink is thoroughly distributed both upon the distributing-rollers and also directly upon the form-inking rollers.

In the drawings the complete carriage is omitted; but the positions of the form-rollers 123 upon the cylinders are indicated in the diagram, Fig. 4. The stop-collars 121 may be made as a part of the shaft 120; but when adjustable, as shown, the reciprocating action

may be changed at will, or entirely dispensed with in the secondary cylinder.

Another part of this invention relates to an improvement in the apparatus for disconnecting the carriage. This is illustrated in Figs. 1 and 5. As just stated, the carriage is omitted; but would be attached by connections, as 125, to arms, as 127, which in turn are fixedly secured to the rock-shaft 128, having a projecting arm 129. Formed in the driving-gear 92 is a cam 130, adapted to vibrate the cam-lever 131. Pivoted to the extremity of the cam-lever at 132 is a connecting-link 133, having a hook 134, adapted to engage a pin 135 in the arm 129. The object of this arrangement is to permit the disengagement of the connecting-link, the counter-weight 136 acting at such time to maintain the arms and carriage in the position shown and indicated. Consequently the said counter-weight must be heavier than the combined weight of the carriage and its connections. This in practice has resulted in an annoying and unsatisfactory action in the connecting-link, which I have found to be due to the fact that the tendency of the motion is to roll the connecting-link out of contact with the pin, and that this is augmented by the excess of weight necessary in the counter-weight, which proposition is made clear by the strain diagram in Fig. 5. In the forward position the thrust through the connecting-link is in line 137, while that of the counter-weight is the tangent 138 of the arc 139, or within the thrust-line 137, while in the out motion the thrust of link is in line 140, while that of counter-weight is the tangent 141, or outside of the thrust-line 140. The consequence of this is that as the arm passes forward the tendency becomes greater and greater to lift the hook both by motion and by thrust of the weight. I obviate this, first, by simply mounting a friction-roller 142 upon the pin 135, and, second, by cutting away or recessing the forward quadrant 148 of the circular bearing of the hook. The result of this is that the actual contact-point of the thrust of the counter-weight 138 is forced to lie in the thrust-line 137 of the link. The roller is therefore locked and can only turn as it ought upon the pin.

I do not herein claim the pedal-guard for the chase-latch pedal, it being held by the office to be distinctive subject-matter.

I claim—

1. The combination, with the crank-wheel having a cam projection, crank-wheel lever, ratchet-lever, and pawl-and-ratchet wheel, of the vibrator-frame operated in one direction by the cam projection and in the other direction by a spring, the said movements of the vibrator-frame taking place when the crank-wheel lever, ratchet-lever, and pawl-and-ratchet wheel are at rest, substantially as described.

2. The combination, with the crank-wheel, cam projection thereon, and vibrator-frame,

of the eccentric stud and roller mounted thereon for the purpose of varying the throw of the said vibrator-frame, substantially as described.

5 3. The combination, with the main cylinder, of the secondary cylinder and the composition distributor-roller parallel to each other, free to rotate and to reciprocate in unison with said main cylinder, substantially as described.

10 4. The combination, with the main cylinder, of the secondary cylinder and the composition distributing-roller, both of which are free to rotate and also to reciprocate with the said main cylinder, the extent of the said reciprocation being different in each member, substantially as specified.

15 5. The combination, with the main cylinder, of the secondary cylinder and the composition distributing-rollers, both of which are free  
20 to rotate and also to reciprocate with the said main cylinder, the extent of the reciprocation.

in the said secondary cylinder being determinable by means of adjustable stop-collars, as 121, substantially as specified.

6. The connecting-link having a hook, the 25 forward and upper quadrant of said hook being relieved, as at 148, for the purpose specified.

7. The connecting-link having a hook, in which the forward and upper quadrant is re- 30 lieved, as at 148, in combination with the friction-roller, roller-pin mounted in a projection of the rock-shaft, and the counter-weight, substantially as and for the purpose specified.

In testimony whereof I have signed my 35 name to this specification in the presence of two subscribing witnesses.

JOHN THOMSON.

Witnesses:

JOHN F. FOX,  
WM. THOMSON.