

J. T. KING.

INK DISTRIBUTING APPARATUS FOR PRINTING MACHINES.

No. 400,221.

Patented Mar. 26, 1889.

Fig. 7.

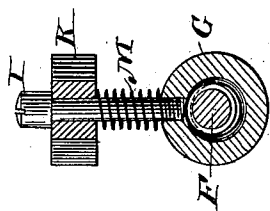
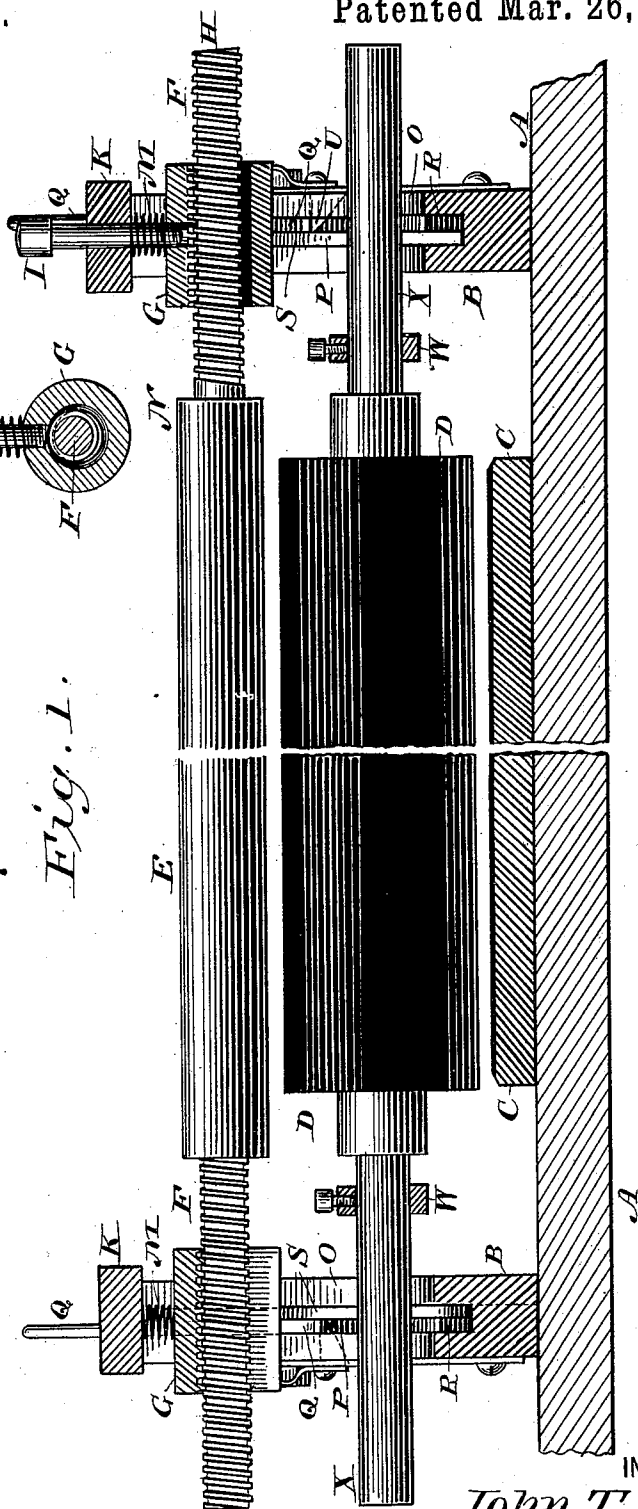
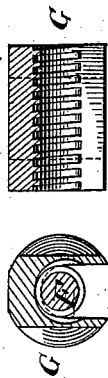


Fig. 1.

Fig. 6.



WITNESSES

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(No Model.)

3 Sheets—Sheet 2.

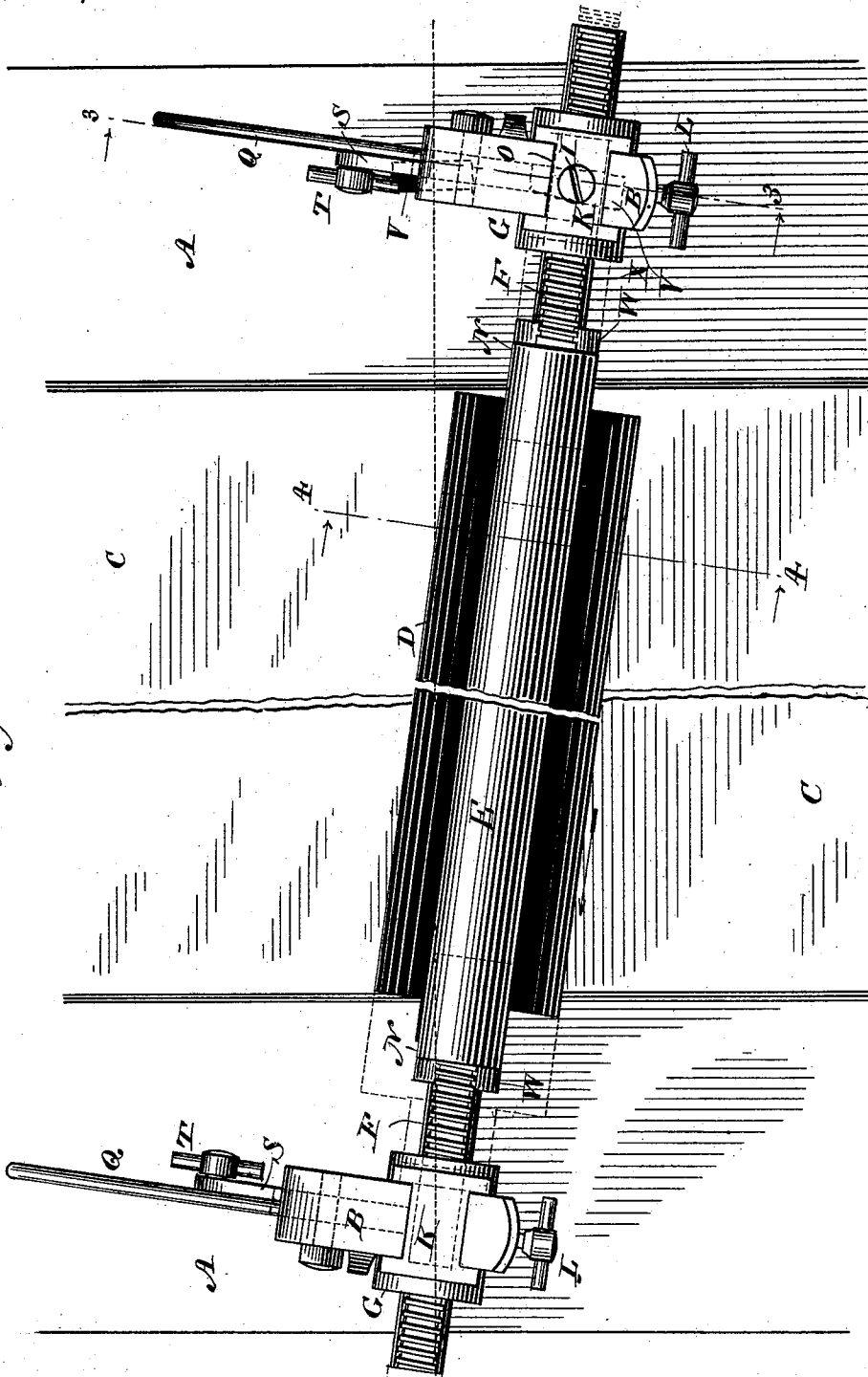
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Fig. 2.



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Fig. 5

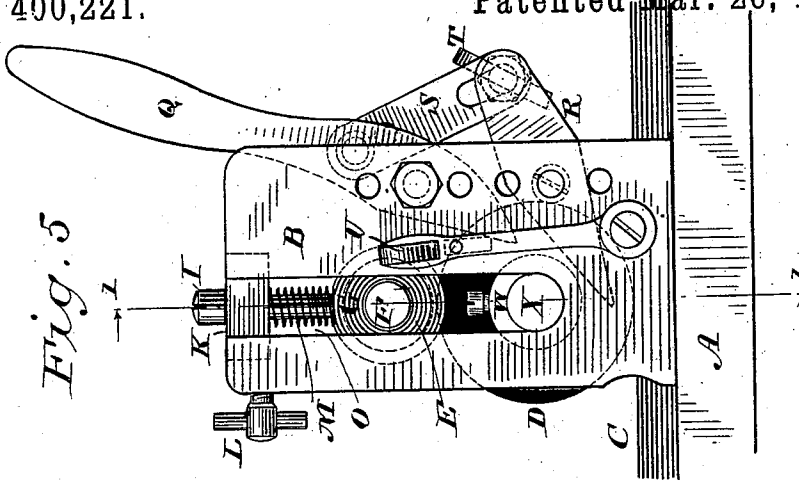


Fig. 4.

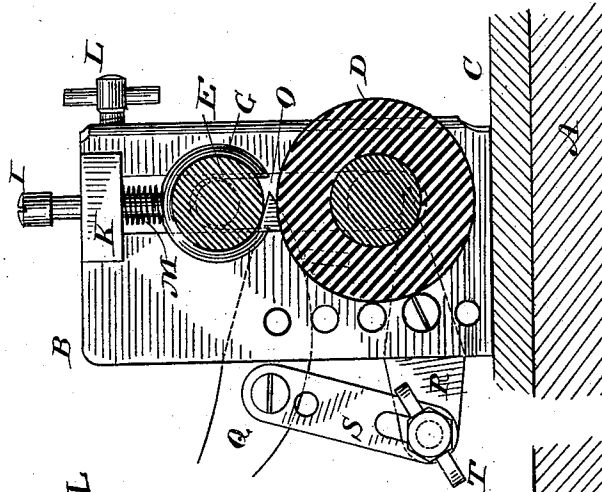
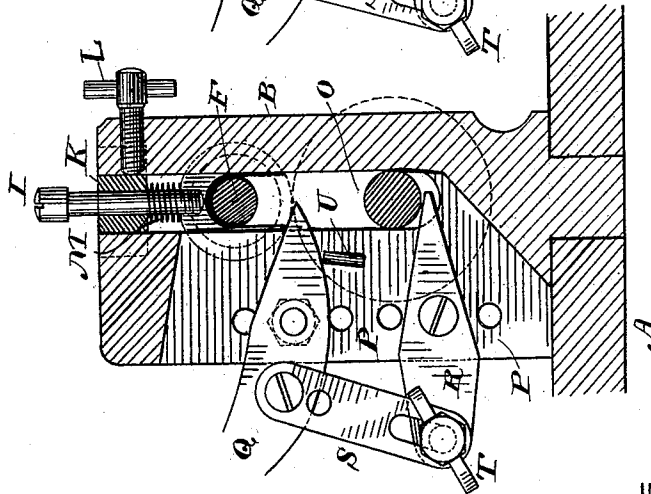


Fig. 3.



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JOHN T. KING, OF MADISON, WISCONSIN.

INK-DISTRIBUTING APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 400,221, dated March 26, 1889.

Application filed April 14, 1888. Serial No. 270,702. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. KING, of Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful
5 Improvements in Ink-Distributing Apparatus for Printing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My improvements relate merely to ink-distributing devices, and therefore I have only
10 illustrated so much of a printing-press as is necessary to show the nature and application of my improvements.

My invention consists in the provision of a
15 slip nut or nuts in connection with the shaft of the grinding-roller or screw-vibrator, whereby I am able to dispense with the gearing usually necessary to connect the shafts of the composition roller and the vibrator and prevent
20 destructive accidents.

It also consists in certain organizations of parts for raising the composition roller off from the disk and for lifting the screw-vibrator simultaneously off from the top of the composition roller.
25

In the accompanying drawings, Figure 1 is a vertical section of the ink-distributing apparatus of a press containing my improvements, taken on the line 1 1 of Fig. 5. Fig. 2
30 is a top plan view of the same. Fig. 3 is a longitudinal section taken on line 3 3 of Fig. 2. Fig. 4 is a section taken on the line 4 4 of Fig. 2. Fig. 5 is a side elevation of my improvements. Fig. 6 are details of a slip-nut, and Fig. 7 is a detail view of a slip-nut and its attachments.
35

Referring to the letters upon the drawings, A indicates suitable supporting parts of the press-frame; B, posts secured thereto; C, an
40 ink disk or plate; D, an ordinary composition ink-distributor roller, and E a steel grinding-roller or screw-vibrator. It is contemplated in this instance that the inking-disk shall reciprocate under and in contact with the composition roller when the ink is being distributed, as is usual; but this forms no part of
45 my invention. The result is that it will communicate rotary motion to the composition roller, which in turn will communicate rotary motion in the opposite direction to the upper
50 roller or screw-vibrator, as is usual in this

general class of ink-distributing rollers for printing-presses.

Instead of having the two roller-shafts geared together by spur-gearing, I rely wholly
55 upon frictional contact of the lower roller with the inking-disk and with the upper roller. The screw-vibrator is fixed to or may be integral with its screw-threaded shaft F.

I provide slip-nuts G for the bearings of the
60 screw-threaded shaft. These nuts may be open on the lower side, so as to constitute half-nuts, or they may be cylindrical, both forms being illustrated and the form being a matter of indifference. Each nut contains a female
65 screw-thread, no matter what its form may be, and the upper part of it only is called into service. The nuts being formed, the shaft ends H of the screw-vibrator are turned down, so as to readily enter the openings in the nuts
70 and freely slide back and forth within them. They are then screw-threaded to correspond with the threads of the nuts. The nuts are held down into engagement with the shaft
75 ends, and thus cause the vibrator to reciprocate in the direction of its length when it is rotated in different directions, as will be understood from the drawings.

I provide a screw-bolt, I, threaded at its lower end, so as to screw into the top of each
80 slip-nut. This screw-bolt passes through a vertically-adjustable tension-block, K, provided with a set-screw fastening, L, of ordinary character.

M indicates a spring, the tension of which
85 is regulated by adjusting the tension-block in the usual way, so as to cause the slip-nut to bear with greater or less force down upon the screw-threaded shaft ends of the vibrator. It is not necessary to use more than one slip-
90 nut; but two may be used. Now whenever the screw-vibrator is rotated in one direction it travels longitudinally in contact with the composition roller, so as to grind or distribute the ink, and when it rotates in the opposite
95 direction it travels in the opposite direction longitudinally with similar effect to grind and distribute the ink. In case either of the roller ends N should come in contact with the end of the slip-nut, or in contact with any
100 other resisting part before the rotation in a given direction had ceased, the springs hold-

ing down the slip-nuts would yield and allow the nuts to slip out of engagement with the vibrator, so that it might continue its rotation sufficiently for practical purposes until the direction of rotation should be changed, when it would travel in the opposite direction longitudinally. This is a very important feature in this class of ink-distributers, because where there is no such provision for permitting the vibrating roller to rotate after it has reached the limit of its longitudinal movement serious damage is likely to be done to the composition roller.

Heretofore spur-gearing connecting the two roller-shafts has been necessary to guard against accidents; but it can be dispensed with with material advantage by using my spring-yielding slip-nuts in the manner described.

It is desirable to raise the composition roller out of contact with the ink-disk whenever the press is not in operation, and it is also desirable to raise the steel screw-vibrator up out of contact with the composition roller, so that the form of the composition roller shall not be disturbed by constant pressure upon certain points. I therefore provide a simple apparatus for instantly raising both rollers, and for raising the upper roller simultaneously with the lower one about twice the distance that the lower one is raised. This is practicable on account of the use of the yielding bearings, such as my slip-nuts for the vibrator and roller.

I provide slots O in the bearing-posts B, adapted to receive the roller-shafts and the slip-nut bearings, as illustrated. I also provide openings or slots P at right angles with the slots O, in which are fulcrumed the lifting-levers Q and R, which are connected by a link, S, by means of pivots, as shown. It will be observed that the arrangement of these levers is such that the hand-lever Q will lift the screw-vibrator about twice as far as the lever R, operated by the link, will lift the composition roller, and that both the rollers, by operating the hand-lever Q, will be lifted simultaneously.

T indicates a set-screw that serves to clamp the link and lever R tightly together when the rollers are lifted up and supported; or it may be used to hold the levers firmly out of action when the rollers are down, as shown in

Fig. 5. There may be two of these sets of levers on opposite sides, and instead of using a set-screw a spring-catch, U, of ordinary construction may be used to hold the levers in position to support the rollers when out of lifting relation to them. I may set the rollers obliquely to the direction of motion of the ink-disk whenever desired by transferring one of the posts B to a different position on the frame, as shown in Fig. 2. When I do this, I adjust the collars W upon the shaft X of the composition roller close to the roller, so as to give it room to travel longitudinally. Then when the ink-disk is moved under the composition roller and in contact with it, it will cause the roller to reciprocate endwise, its shaft ends sliding on their bearings, because the friction of contact between the roller and the ink-disk is greater than that tending to prevent such motion. By that means I cause the two rollers to reciprocate longitudinally in opposite directions, thus doing twice the work of ink-distribution by the same reciprocating movements of the ink-disk.

Having described my improvements in ink-distributing apparatus, what I claim to be new, and desire to secure by Letters Patent of the United States, is—

1. In an ink-distributing apparatus, a yielding slip-nut, in combination with a threaded shaft of a screw-vibrator, substantially as set forth.

2. In an ink-distributing apparatus, the combination, with the rollers adapted to be lifted from their bearings, of the lifting-levers acting upon them separately, but connected by a pivoted link, so as to raise the upper roller simultaneously with the lower, but to a greater height than the lower is raised, substantially as set forth.

3. In an ink-distributing apparatus, the combination, with the rollers, lifting-levers, and link, arranged and operating as described, of a catch or fastening for holding the levers in the position for supporting the rollers when out of action, substantially as set forth.

In testimony of all which I have hereunto subscribed my name.

JOHN T. KING.

Witnesses:

W. G. WALKER,
B. M. BRUCE.