

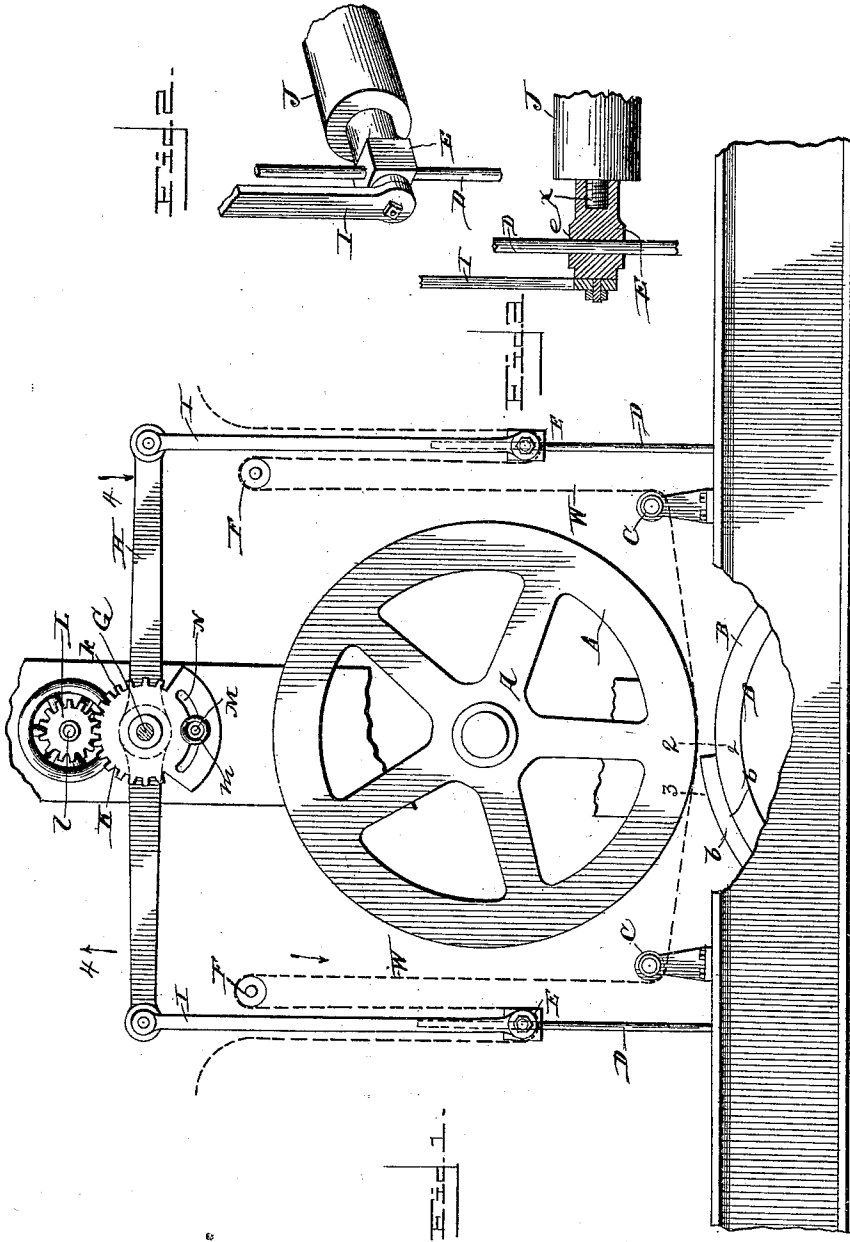
(No Model.)

J. L. COX.

WEB ADJUSTING MECHANISM FOR PRINTING PRESSES.

No. 439,723.

Patented Nov. 4, 1890.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOSEPH L. COX, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO THE DUPLEX PRINTING PRESS COMPANY, OF SAME PLACE.

## WEB-ADJUSTING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 439,723, dated November 4, 1890.

Application filed November 1, 1889. Serial No. 328,945. (No model.)

### To all whom it may concern:

Be it known that I, JOSEPH L. COX, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Web-Adjusting Mechanisms for Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 represents a detail side elevation of a portion of a printing-press, showing my improved paper register-correcting device. Figs. 2 and 3 are details thereof.

This invention is an improvement in printing-presses wherein the paper is fed in a continuous web and printed during its passage through the press on both sides, or, technically speaking, "perfected;" and the object I have in view is to insure accuracy of register of the impressions on both sides of the paper and to permit the paper to be adjusted or shifted between the mechanism which produced the first impression on the web and the delivery apparatus without altering the tension of the paper or web in the slightest, and this result I effect by the means illustrated in the drawings, and hereinafter described and claimed.

A designates the impression-cylinder of a printing-press, and B the type-cylinder, having a type-plate *b* thereon, as usual, though a reciprocating type-bed may be used in connection with the impression-cylinder, if desired. At each side of the cylinder A is mounted a roller C, journaled in suitable supports on the frame of the press, and beside these rollers rise vertical rods D D. On these rods are guided movable blocks E E, which have bearings *e* formed in their inner faces for the journals of idler-rollers J, as indicated in the drawings, said idler-rollers being horizontal and parallel with rollers C. Above rollers C and J and between the same are rollers F, mounted in stationary bearings (not shown) on the press-frame.

G is a shaft parallel with and above the shaft of cylinder A, and H is a horizontal rock-bar fixed on said shaft and connected at

its ends by links I I with the journal-blocks E at that side of the machine, there being preferably a bar H at each side of the machine, in order that the blocks E, supporting opposite ends of the rollers J, can be simultaneously moved up or down.

K designates a segmental plate secured to shaft G and having a toothed portion *k* engaging a gear L on a shaft *l*, operated by a hand-wheel, and M is a stud secured to the main frame and projecting through a slot N in a depending portion of plate K, and upon which is a nut *m*, by which the plate K can be locked in various positions, thus locking shaft G and parts connected thereto. By means of rocking shaft G it is obvious that rollers J J at opposite sides of the cylinder A will be respectively raised or lowered a corresponding and equal amount if the point of attachment of links I to bars H are equidistant from the axis of the shaft G, as they should be, and rods D are equidistant from the cylinder A.

W designates the web of paper passing through the press, as shown, entering below one roller J, thence passing up over the adjoining roller F, thence down under adjoining roller C, thence under the cylinder A between the same and cylinder B, and under the opposite roller C, up over the other roller F, down under the other roller J, and up and out to the delivery mechanism. (Not shown.) The web of paper has already been imprinted on one face, which is the face running against cylinder A, and it is desired to produce a second impression on the opposite unprinted surface as it passes between cylinders A B. The exact point of impression is of course the point where the paper crosses an imaginary line vertically beneath the axis of cylinder A, or a line drawn between the axes of cylinders A B, as indicated on the drawings by the line 2. Now, indicating the position or edge of the impression already made on the paper by the marks 3 on the drawings, it is necessary to make accurate register of the paper that the edge 3 be brought to the point 2 at the same moment that the edge of the type-plate B reaches that point in order to make the two impressions on the opposite sides of the web coincide or register

accurately in position with respect to each other. Now if for any cause the paper web in starting through the press is disarranged, so that the edge of the first impression—say 5 3—falls behind and reaches the point 2 after the type-plate *b*, obviously the register will not be accurate, and it will be necessary to shift the web, so that it will be drawn forward sufficiently to cause point 3 to reach 10 line 2 at the same moment with plate *b*. This is accomplished by shifting shaft G and bars H in the direction indicated by the arrows 4 4. This raises the roller J at the entry side of the press, shortening the loop of paper in 15 the web between said roller and cylinder; but simultaneously the opposite roller J has been lowered, drawing the web beneath the cylinder and lengthening up the loop on the opposite side, and if the adjustment of shaft G 20 has been sufficient the web will be shifted so as to make point 3 of the web and plate *b* on the impression-cylinder coincide in reaching line 2, as is obvious. Should the point 3 run beyond or overreach line 2, the web can be 25 shifted backward by reversing the described adjustment of shaft G. It will be observed that the paper is not disturbed or altered in position except between the rollers J J. Consequently there is no alteration or effect of 30 the tension on the web whatever, the tension of the web being always uniform throughout the press, even when the position of the web may be shifted beneath the cylinder A.

Having described my invention, what I 35 claim, and desire to secure by Letters Patent thereon, is—

1. In a printing-press, the combination of the impression-cylinder, the paper-guide rollers mounted in stationary bearings at each 40 side thereof, and the vertically-adjustable paper guides or idlers at opposite sides of the cylinder with mechanism, substantially as described, for simultaneously shifting said

guides in opposite directions, whereby the portion of the web of paper between said idler-rollers is thrown forward or backward beneath the cylinder without altering the tension or stopping the travel of the web, substantially as described. 45

2. The combination, in a printing-press, of the impression-cylinder, the stationary paper-guide rollers, and the vertically-adjustable paper-guide idler-rollers at each side of the cylinder with the devices, substantially as described, for simultaneously shifting said idler-rollers in opposite directions, whereby the 55 portion of the web of paper between said idler-rollers is thrown forward or backward beneath the cylinder without disturbing the tension thereof or stopping its travel, substantially as and for the purpose described. 60

3. The combination, in a printing-press, of the impression-cylinder, the web-guide rollers mounted in stationary bearings at each side thereof, and the vertically-movable blocks 65 carrying idler-rollers for the web at opposite sides of the cylinder, with the devices for simultaneously shifting said idler-rollers in opposite directions and for locking them in such position, all substantially as specified. 70

4. The combination, in a printing-press, of the impression-cylinder, the paper web-guide rollers C and F, and idlers J on opposite sides thereof with the vertically-movable blocks supporting said idlers, the shaft G, bars H, 75 and links I for operating said blocks, and the devices for locking and rocking said shaft, all constructed and arranged substantially as and for the purpose described.

In testimony that I claim the foregoing as 80 my own I affix my signature in presence of two witnesses.

JOSEPH L. COX.

Witnesses:

A. E. DOWELL,  
P. L. BROOKS.