

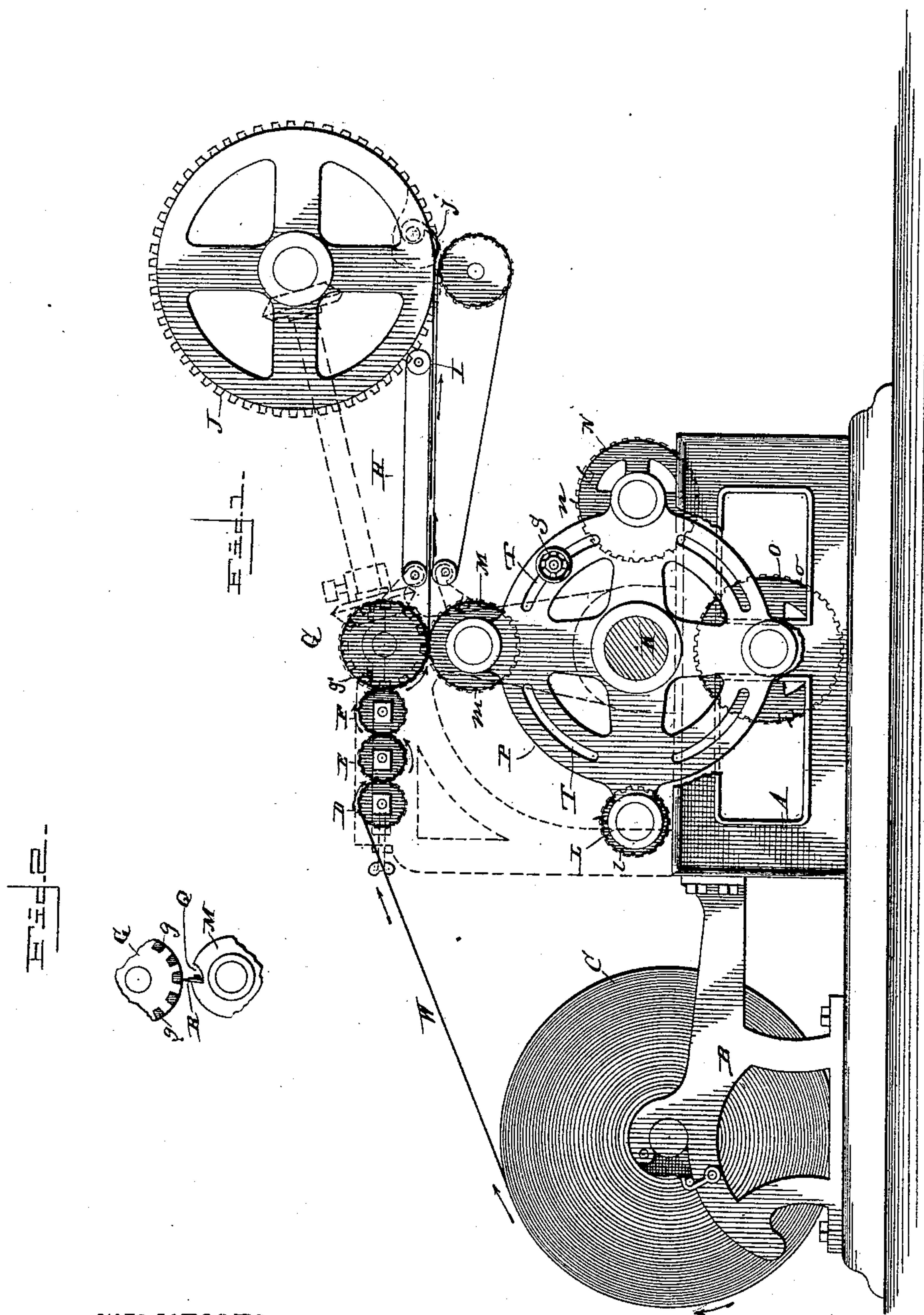
(No Model.)

J. L. COX.

WEB CUTTING MECHANISM FOR PRINTING PRESSES.

No. 435,355.

Patented Aug. 26, 1890.



WITNESSES

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WEB-CUTTING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 435,355, dated August 26, 1890.

Application filed November 1, 1889. Serial No. 328,950. (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-Cutting Mechanism 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 is a side elevation, partly broken, of my improved machine for perforating continuous webs of paper and dividing the same into separate sheets. Fig. 2 is a detail sectional view of one of the perforating-cylinders and the coacting roller.

This invention is an improvement in machines for severing sheets of paper from a continuous web or roll thereof; and its object is to provide means for perforating the web at regular intervals into sheets of varying lengths; and to this end it consists, essentially, of a series of adjustable perforating-rolls, either of which can be readily adjusted to operate upon the paper, in combination with an impact cylinder or roll coacting therewith, and in certain other novel details of construction and arrangement hereinafter described and claimed.

Referring to the drawings by letter, A designates the frame of the machine; B, the paper-roll support; C, the paper roll, and W the web of paper. D, E, and F are three paper-feed rolls lying parallel with each other and properly journaled in bearings on the main frame at the top thereof, and G is an impact-roll adjoining roll F and having a series of longitudinal grooves in its periphery in which are removable strips *g g*, of rubber, wood, or other soft material, against which the perforating-blades contact and indent in their operation upon the web. H I are delivery-tapes running over proper rollers and extending forward to a gripper-cylinder. The roll G may be driven by proper gearing from this cylinder-shaft, as indicated in the drawings. Parallel with and below roll G is a shaft K, journaled in bearings in the main frame, on the opposite ends of which within the frame are mounted spider-frames P, (only one being

shown, as they are similarly constructed.) In said spider-frames are formed bearings for the shafts of the perforating-rollers, four of which, L, M, N, and O, are shown mounted parallel with shaft K and at about equidistant points from each other. The several rollers L, M, N, and O are of different diameter, roller L being the smallest and O the largest, the others being intermediate between the two. Each roller has a longitudinal groove Q in its periphery, in which is secured a perforating-blade R, the outer edge of which is preferably serrated and projects slightly beyond the periphery of the roll. The rollers L M N O, with frames P and shaft K, form a reel, and by revolving this reel either of the said perforating-rollers may be brought beneath and in opposition to roll G, as is obvious, the shafts of the said perforating-rollers being so journaled in the reel in relation to the axis thereof and the axis of roll G that when brought beneath and in proximity to roll G the peripheries thereof shall nearly impinge, and the cutting-blade of the perforating-roller will impinge against one of the removable strips *g* in roll G.

S designates a screw-bolt engaging a suitable recess in the main frame and projecting through one of a series of slots T in the frame P, by which the reel can be locked in any position desired with either of its perforating-rollers uppermost.

On the end of the shaft of each perforating-roll is a gear *l m n o*, respectively, which, when its roll is brought uppermost, will mesh with a gear *g'* on the shaft of roll G, so that the peripheries of the perforating and impact rolls will travel with the same speed always, the gears on the perforating-rolls corresponding in diameter with the peripheries thereof and the gear on roll G corresponding in diameter therewith.

The paper-feed rollers D E F are driven by intermeshing gears on their several shafts from a gear on the shaft of roll G, as indicated, the peripheries of the paper-feed rolls traveling equally.

In operating the machine the web W of paper is carried up over roll D, under roll E, over roll F, under impact-roll G, and out to the receiving-tapes H I, and after the reel-

frame has been adjusted to bring the desired perforating-roll opposite roll G the machine is started. The paper-feed rolls feed the paper continuously forward between the impact and perforating rolls at a regular speed, and at each revolution of the perforating-roll the web is perforated transversely before it enters the delivery-tapes H I. These tapes draw upon the end of the web after it has passed the perforating-roll and are so adjusted as to bring the edge of the web into position beneath the cylinder J, the gripping-fingers j of which are adapted to grasp the edge of the sheet or web as it is brought forward by the tapes and draw the same around the periphery of the cylinder out of the tapes. The cylinder and tapes are not herein claimed, broadly, the principal feature of the present invention being the series of perforating-rolls in an adjustable reel-frame.

Each perforating-roll being different in diameter, the sheets of paper perforated by the respective rolls will be of varying lengths. Hence the operator should regulate the speed of the feed-rolls and delivery-tapes, or the adjustment thereof, so that the edge of the web or of each sheet will be grasped at each revolution of the cylinder, whether the sheet be long or short. These adjusting devices are neither shown nor claimed herein, but may be substantially like those described and shown in my application for patent on apparatus for severing sheets from a web of paper filed November 1, 1889, Serial No. 328,949.

Any number of perforating-rolls can be mounted in a reel-frame that may be desired. By this construction it is obvious that having a sufficient number of perforating-rolls, the circumferences of which correspond to the various lengths of sheets required, the operator can very readily shift the parts to cut either length of sheet.

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

1. The combination of the paper-feed rolls

and the impact-roll mounted in stationary bearings, with a perforating-roll journaled in revoluble supports beneath said impact-roll and operating therewith when properly adjusted, substantially as described.

2. The combination of the paper-feed rolls and the impact-roll with perforating-rolls mounted in a revoluble frame or reel below the impact-roll, whereby either of the perforating-rolls can be conveniently brought into position to operate with the impact-roll upon the web of paper passing between the same, all substantially as described.

3. The combination of the paper-feed rolls, the impact-roll, and the delivery-tapes, with a series of perforating-rolls journaled in spider-frames mounted on a revoluble shaft below the impact-roll, and locking devices for said frames, substantially as specified.

4. In a web perforating or cutting machine, the combination of the paper-feed rolls and the impact-roll having a series of longitudinal removable strips in its periphery, with the shaft K, frames P, and the rolls journaled in said frames and having longitudinal perforating-blades secured to their peripheries, all substantially as and for the purpose described.

5. The combination, in a web perforating or cutting machine, of the paper-feed rolls, the impact-roll G, and the delivery-tapes, with the perforating-roll reel below roll G, consisting of a shaft K, frames P, a series of rolls of different diameters journaled in said frames and the blades secured in longitudinal grooves in the peripheries of said rolls, and locking devices for said reel, all constructed and arranged to operate substantially as and for the purpose described.

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

JOSEPH L. COX.

Witnesses:

A. E. DOWELL,
P. Z. BROOKS.