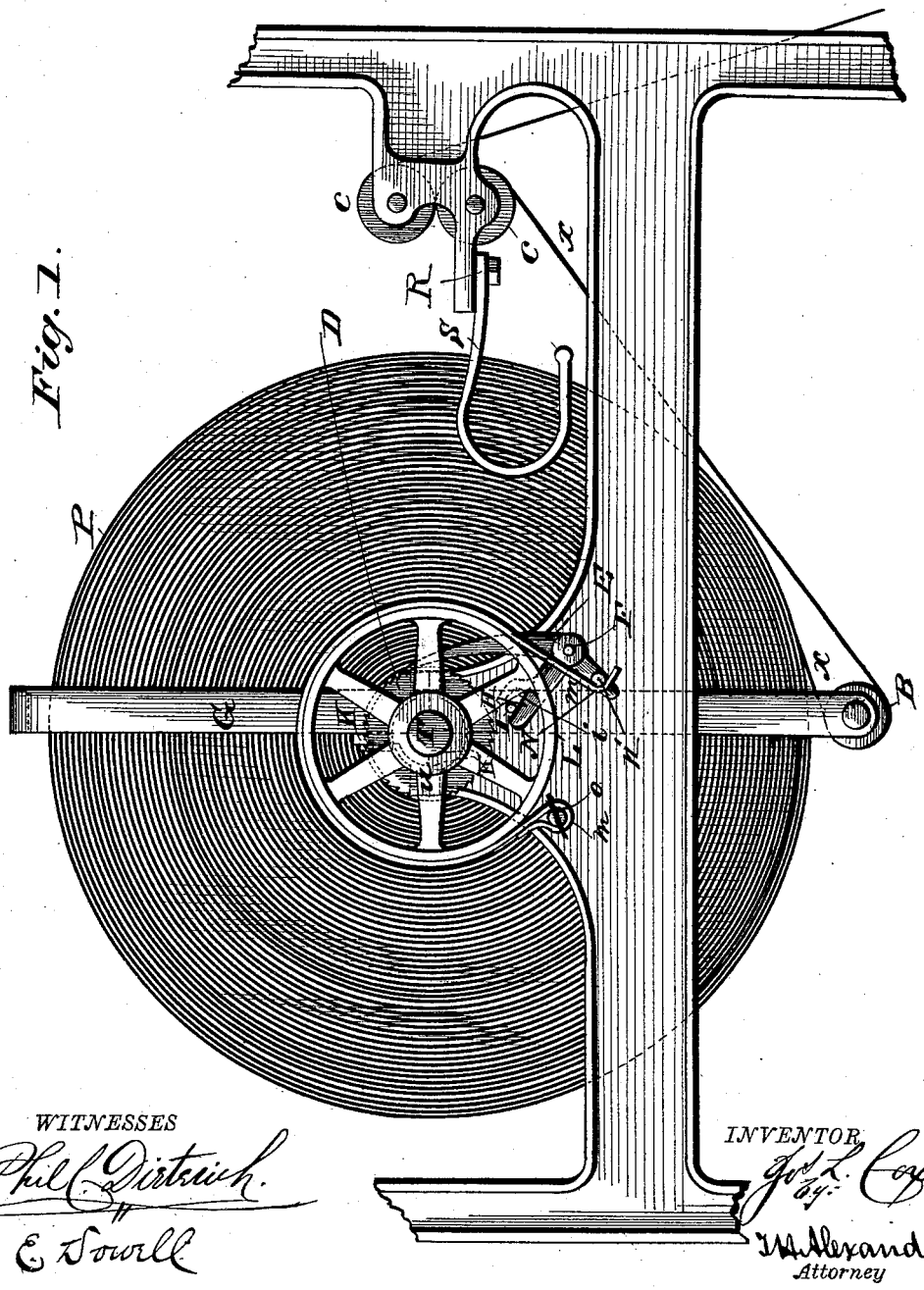
(No Model.) 2 Sheets—Sheet 1.

J. L. COX.

WEB CONTROLLING DEVICE FOR PRINTING MACHINES.

No. 347,690. Patented Aug. 17, 1886.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

J. L. COX.

WEB CONTROLLING DEVICE FOR PRINTING MACHINES.

No. 347,690. Patented Aug. 17, 1886.

Fig. 2.

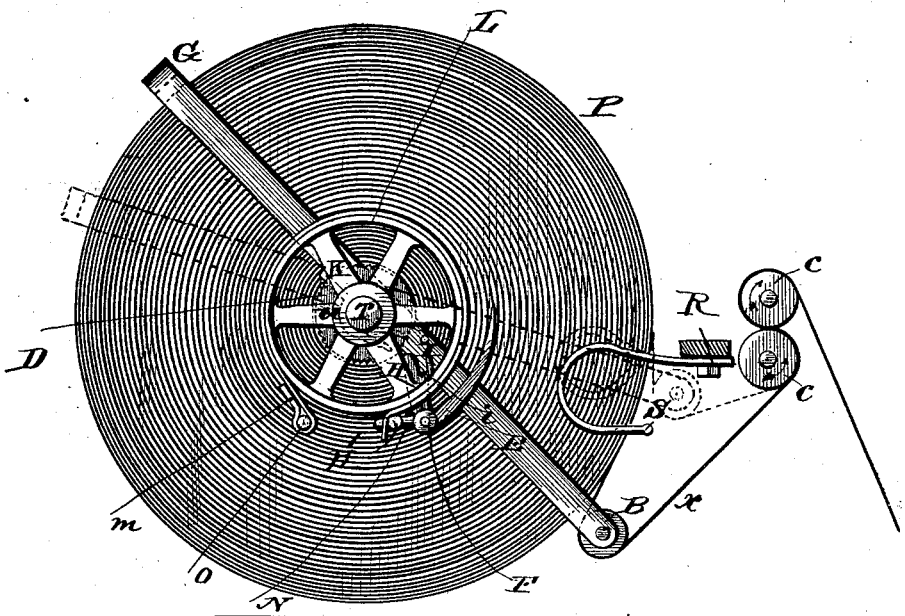
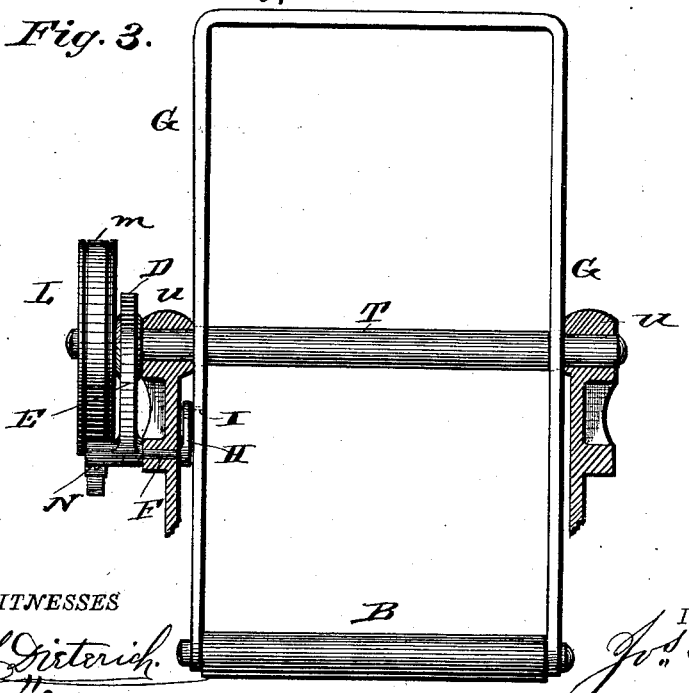


Fig. 3.



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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-CONTROLLING DEVICE FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 347,690, dated August 17, 1886.

Application filed December 9, 1885. Serial No. 185,161. (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-Controlling Devices for Printing-Machines; 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 view of my improved paper-feed governor, partly in section. Fig. 2 is a similar view of the governor in different position. Fig. 3 is a front view of the governor with the roll of paper removed.

The invention is a governor for controlling the speed and regulating the tension of the web fed from a roll of paper to a printing-press; and it consists in the construction and novel arrangement of parts hereinafter described.

While the invention is particularly applicable to a printing-press, it may be used to regulate the tension and control the speed of any fabric fed from a roll, as is done in calico-printing and other arts.

In the accompanying drawings, P designates the roll of paper on the shaft T, which is journaled in proper bearings formed on the frame of a printing-press.

c c are the rollers auxiliary to the feed-rollers, (not shown,) between which the web passes after leaving the roll P. The said rollers *c c* are also journaled in bearings formed on the frame of the press. The feed-rollers proper are similar to those shown in my patent numbered 332,138, and dated December 8, 1885, and need, therefore, no detailed description.

G is a rectangular frame journaled by means of the hooks K K upon the shaft T, and having the idler shaft or cylinder B journaled in the ends of its arms below the pivotal hooks K. The said hooks are bolted or otherwise secured to the side bars of the frame G, and are so bent as to fit upon the shaft T, so that the frame G turns on the same. The cylinder B is arranged to rest and ride upon the web *x* between the roll P and the feed-rollers *c c*.

D is a ratchet-wheel secured to the shaft T outside of the frame G and one of the bearings *u* of the shaft, and L is a friction-wheel on the shaft to the outer side of the ratchet-wheel D.

m is a band of spring-steel having one end secured to a pin, *o*, standing from a suitable part of the frame of the press. The band runs from the said pin nearly around the friction-wheel, closely hugging the same, and has its other end bearing upon a pin, *n'*, on an extension, N, of the pawl E, the pin F at the angle of which is journaled in a bearing formed on the frame of the press. The pawl is arranged to engage with the ratchet-wheel D, and is provided with an arm, H, which stands from the inner end of the pin F, adjacent to the side bar of the frame G.

I is a pin standing out from the said side bar in position to strike within the notch *i* near the end of the arm H when the cylinder B is lowered. When this action takes place, the extension N and pin *n'* are turned outward, and the steel band *m* is consequently tightened on the friction-wheel L.

S is a spring-stop secured to the frame of the press at R, and arranged to prevent the outer arms of the frame G from being lifted too high. The give or yield of the spring also prevents jar when the upward motion of the frame is stopped.

The operation of the governor is as follows: The idle-cylinder B rests on the web of paper. As the latter passes from the roll to the auxiliary rolls *c* of the feed-rollers the weight of the cylinder B causes the lower end of frame G to descend until the pin I bears on the arm H and makes the band *m* bind on the friction-wheel L, when the roll stops its rotation; but the idler-cylinder will still continue to descend, and makes the slack of the web taut. The feed-rollers are then actuated by mechanism similar to that shown in my patent before referred to, in such manner that they then begin to turn rapidly and draw out the web. The idler-cylinder is then drawn up, and allows the slack to feed out to the rollers. When it has ascended a short distance, its weight causes the roll P to begin rotating and to feed to the rollers *c c*. All the while the idler-cylinder lies upon the slack of the web and keeps the same taut. The rollers *c c* then stop rotating,

the proper amount of paper having been fed to the press, the idler-cylinder again descends, and the rotation of the roll is stopped by the action of the steel band *m* and friction-wheel, as before. The action of the idler-cylinder is such that while depressing the slack, rising with the same, and allowing the web to feed below it from the roll, the web is kept at a uniform tension, and the danger of breaking is brought to a minimum. Without the governor very high rates of speed cannot be attained, nor can large rolls be used without constant danger of breaking the web, as a slack between the roll and feed-rollers will form. The ratchet-wheel and pawl will stop the rotation of the roll in case the steel band fails to act; but when the band and friction-wheel are in proper order the ratchet will rarely come into use.

Having described my invention, I claim—

1. The idler-cylinder journaled in a frame journaled on the shaft of the paper roll, and arranged to rest upon the web of paper between the roll and the feeding-rollers, substantially as specified.

2. The combination of the paper-roll shaft, the frame journaled thereon, the idler-cylinder journaled in said frame, and the feeding-rollers, substantially as specified.

3. The combination of the paper-roll shaft, the frame journaled thereon, the friction-pulley secured thereto, the idler-cylinder journaled in the journaled frame, the steel band partially surrounding the friction-wheel, the feed-rollers, and means, substantially as described, whereby the descent of the idler-cylinder tightens the hold of the steel band on the friction-wheel, substantially as specified.

4. The combination of the roll-shaft, the ratchet-wheel and friction-wheel secured thereto, the frame journaled on the roll-shaft, the feed-rollers, the steel band partially surrounding the friction-wheel, and the pawl pivoted on the frame of the machine and adapted to engage the ratchet-wheel.

5. The combination of the shaft T, the frame G, journaled thereon, the idler-cylinder pivoted to the frame, the ratchet-wheel D and friction-wheel L on the roll-shaft, the feed-rollers *e e*, the steel band *m*, the pawl E, having the end of the steel band bearing on the pin *n'* of the extension N, and provided with an arm, H, having a notch, *i*, in its end, and the pin I on the side bar of the frame G, arranged to enter said notch when the idler-cylinder is depressed.

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

JOSEPH L. COX.

Witnesses:
HENRY H. BROWN,
CHARLES E. THOMAS.