

(No Model.)

2 Sheets—Sheet 1.

J. L. COX.

FEED GOVERNOR FOR PRINTING PRESSES.

No. 370,321.

Patented Sept. 20, 1887.

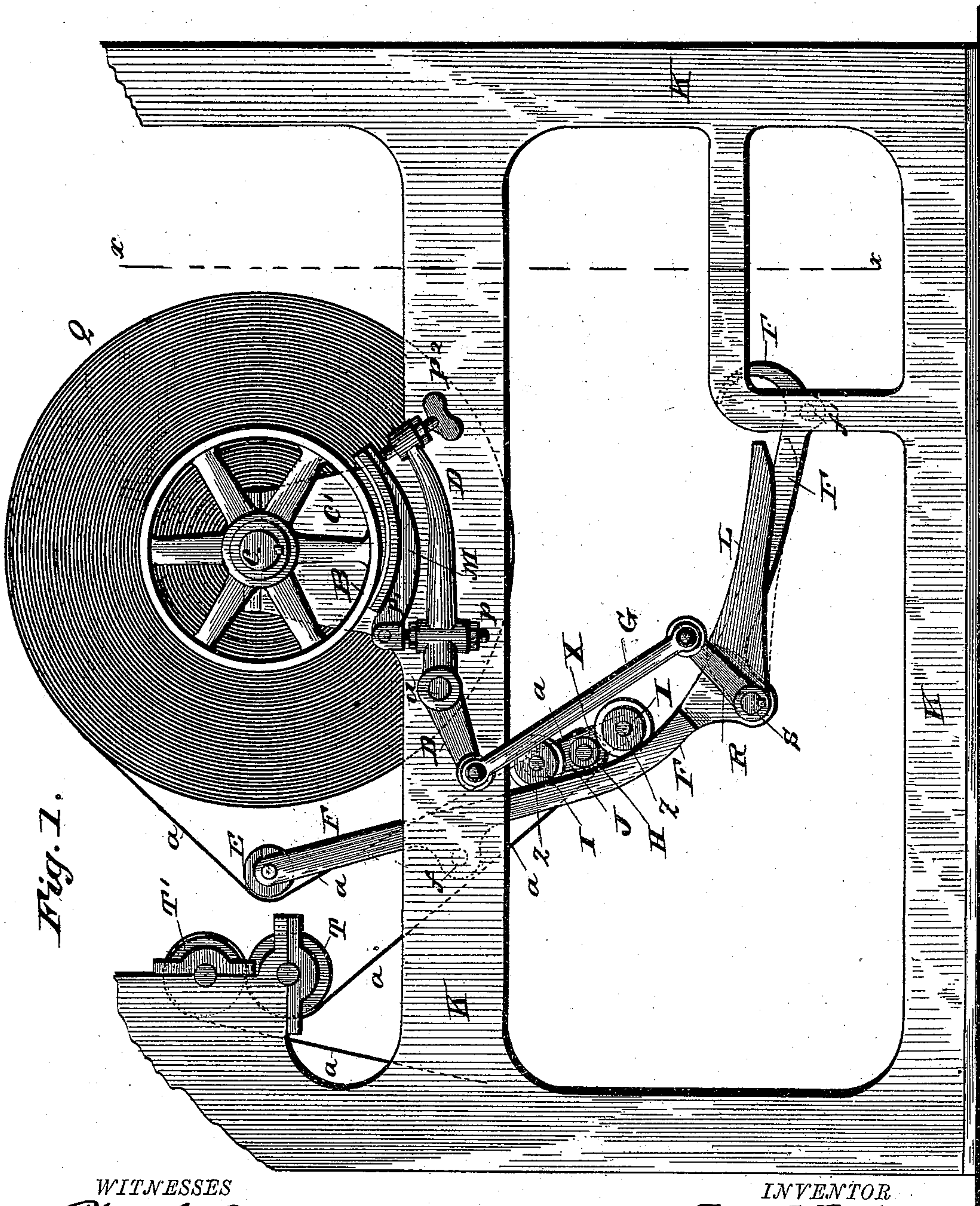


Fig. 1.

WITNESSES

Phil C. Dietrich
A. E. Towell

INVENTOR

Joseph L. Cox.

by *W. Alexander*
Attorney

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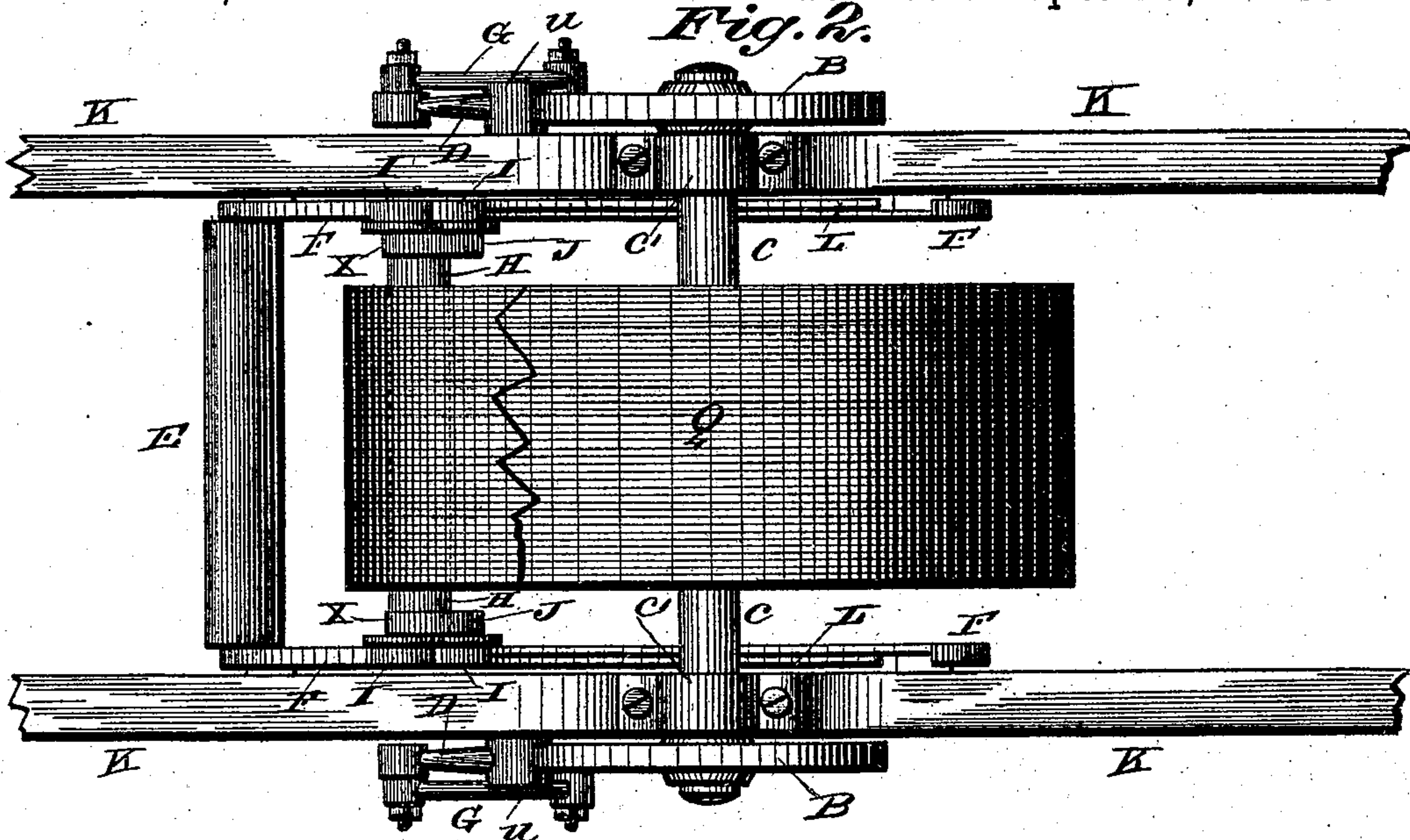
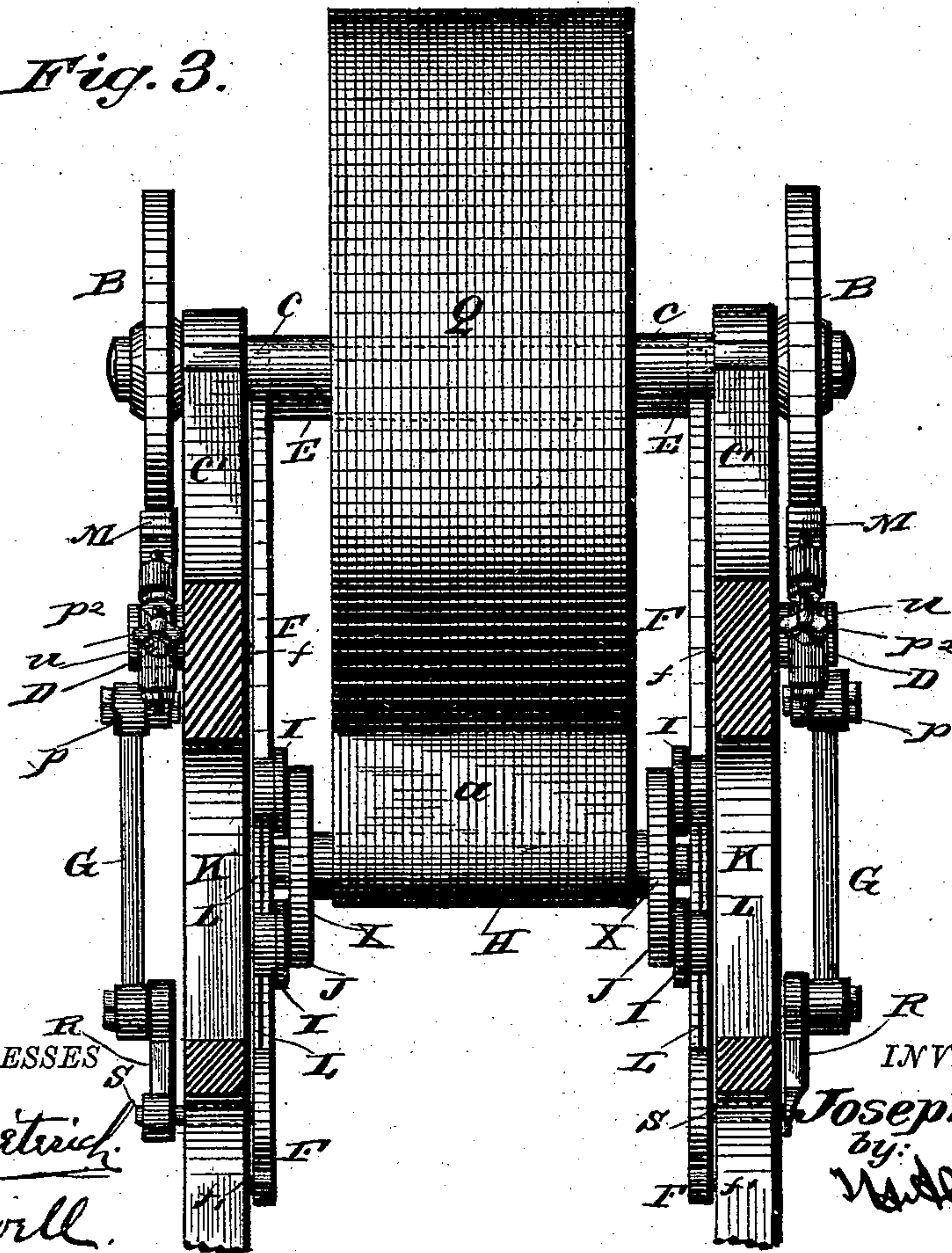


Fig. 3.



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Phil. L. Dietrich
A. E. Dowell

INVENTOR

Joseph L. Cox.

by: *W. Alexander*
Attorney

UNITED STATES PATENT OFFICE.

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

FEED-GOVERNOR FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 370,321, dated September 20, 1887.

Application filed October 12, 1886. Serial No. 216,033. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LEVI COX, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Feed-Governors 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 of a portion of a printing-press embodying my invention. Fig. 2 is a top or plan view of the same. Fig. 3 is a transverse vertical section taken on the line *x x*, Fig. 1.

This invention relates to improvements in printing-presses, the object being to provide a governor which will automatically control the speed and regulate the tension of a web of paper while being fed from the roll into the press.

The invention consists in the construction and novel arrangement of parts, hereinafter described, illustrated in the drawings, and pointed out in the claims hereto appended.

Referring to the accompanying drawings, K designates the main frame of a printing-press similar to that shown in my patent dated December 8, 1885, and numbered 332,138, and T T' are transverse feed-rollers journaled in said frame and similar to those shown in said patent.

c is a transverse shaft journaled in opposite upward extensions, *c'*, from the top rails of the sides of the main frame K, and *a* is the roll of paper on said frame.

B B are similar wheels properly secured on the ends of the shaft *c*, extended outside their bearings, which perform the function of brake-wheels, as hereinafter explained.

F F are similar bars secured in opposite sides of the main frame at the points *ff'*, by bolts or otherwise, and having the shaft of the transverse roller E journaled in their upper ends. The said bars curve upward between the roll of paper, Q, and the feed-rollers T T', and their upper edges form ways for the wheels I I of the carriage X, which is composed of the following parts:

J J are the similar side plates of said carriage, each having journaled at its ends, upon short shafts *z*, the flanged wheels I I, the treads of which run on the edges of the bars F, their flanges being on the inner sides of said bars.

H is a heavy roller the journals of which have bearings centrally in the plates J, so that the roller connects the said plates.

The web of paper, *a*, in leaving the roll Q passes over the roller E, thence downward under the roller H, which acts as a tension-roller for the paper, thence upward over the feed-roller T, and between the same and the feed-roller T', thence over the latter roller to the press. The lower ends of the bars F are curved upward, as shown in the drawings, to prevent the wheels I from descending or falling off from said bars. As the plates J rest against the shoulders formed by the journals of the roller H and the flanges of the wheel I are to the inner side of the bars F, the roller H will, as it moves, be always in parallel positions, so that no unequal transverse tension will be put on the web.

The mechanism by which the motion of the carriage X, and consequently that of the web *a*, is regulated is as follows:

M M are brake-shoes, each of which has a similar curvature to the corresponding wheel, B, being leather-lined on its concave meeting surface. Each of said shoes is connected to a double-armed lever, D, pivoted at *u* to the outer surface of the corresponding side of the main frame by the screw *p*, which passes through a vertical threaded opening in a boss or enlargement on said lever near the pivot-point *u*, and has upon its upper end a bifurcated head, *p'*, between the arms of which is pivoted the heel of the shoe. *p²* is an adjusting-screw passing through a threaded opening in an enlargement of the end of the larger arm of the lever D and impinging against the under surface of the shoe near its point.

It is evident that by means of the screws *p* and *p²* both the distance and angle which the shoe bears to the wheel B can be regulated. Each lever D has the end of its shorter arm pivoted to the upper end of a connecting-rod, G, the lower end of which is pivoted to the upper end of a short vibrating lever, R, which

has its lower end or head secured by a key or otherwise to a short shaft, S, journaled in a projection of the corresponding bar, F.

L is a lever having one end similarly secured to the shaft S between the lever R and the bar F, and projecting thence downward, with its upper edge a sufficient distance above the corresponding edge of the bar F.

It is evident that when the carriage X descends far enough for the tread of the wheels I to bear on the levers L, which are to the outside of the arms or bars F, and force the said levers far enough downward by means principally of the weight of the roller H, the shoes M will be forced upward against the wheels B by means of the levers R D and rod G, and the rotation of the shaft c and the roll of paper stopped. The brake-shoes M not being engaged against the wheels B, the roller H will bear down on the web, and the carriage X, running down on the bars F, will draw the web downward and cause the roll of paper to rotate forward, and the web will be kept sufficiently taut as it leaves the roll by the descending roller H, which is the governor. The mechanism is so constructed that when the central part of the plates J reaches a point above the shafts S a sufficient amount of paper has been unrolled, and the lower wheels I then coming in contact or running upon the levers L bring the brake mechanism into action, as described, and stop the rotation of the roll Q. Thus a reserve loop of paper is held taut by the roll H of the carriage X, which is now at rest upon the lower part of the curve of the bar F. The feed-rollers T T' are then actuated, as described in my patent heretofore referred to, and draw out the web, so that the carriage X and roller H are lifted or drawn upon the ways. When the carriage has ascended a sufficient distance, the brake mechanism is released and the roll Q begins rotating, allowing the carriage to again descend. At all times the web is kept taut by the roller H, which rests within its loop. When the roll Q begins rotating, the feed-rolls T T' are brought to rest by mechanism substantially as shown in my patent hereinbefore referred to, as enough paper has been fed to the press.

By the described construction the weight of the roller H is thrown principally on the web when it is necessary that the roll Q should turn rapidly. The carriage is then on the steepest part of its ways. When the carriage has run to the part of the ways nearly horizontal and enough paper has been run from the roll, the brake mechanism can easily stop it, as its weight is mainly on the ways.

Having described my invention, I claim—

1. The combination, with the paper-roll shaft having brake-wheels mounted on its ends, the paper-feed rolls, and the curved guide-bars forming ways and secured below and to one side of said paper-roll, of the carriage bearing the paper-tension roll and moving on said ways, the levers pivoted at the lower ends of said ways and adapted to be depressed by the carriage upon its descent, and the series of brake-levers, connecting-rods, and brake-shoes connecting with and adapted to be operated by the pivoted levers on said ways, and thereby regulate the tension of the paper, all substantially as described.

2. In a printing-press, the combination, with the shaft c, brake-wheels B, and feed-rollers T T', of the bars or ways F, secured to the main frame, the roller E, the carriage X, composed of the side plates, J, wheels I, and weight-roller H, and brake mechanism, substantially as described, adapted to be actuated by the carriage to stop the rotation of the wheels B, substantially as specified.

3. In a printing-press, the combination, with the paper-roll shaft, brake-wheels, feed-rollers, curved ways, and carriage, all constructed substantially as described, of the shafts S, levers R and L, secured to said shaft, the connecting-rods G, levers D, brake-shoes M, and adjusting-screws $p p^2$, all constructed and arranged substantially as and for the purpose specified.

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

JOSEPH LEVI COX.

Witnesses:

CHARLES E. THOMAS,
JIM H. SCOTT.