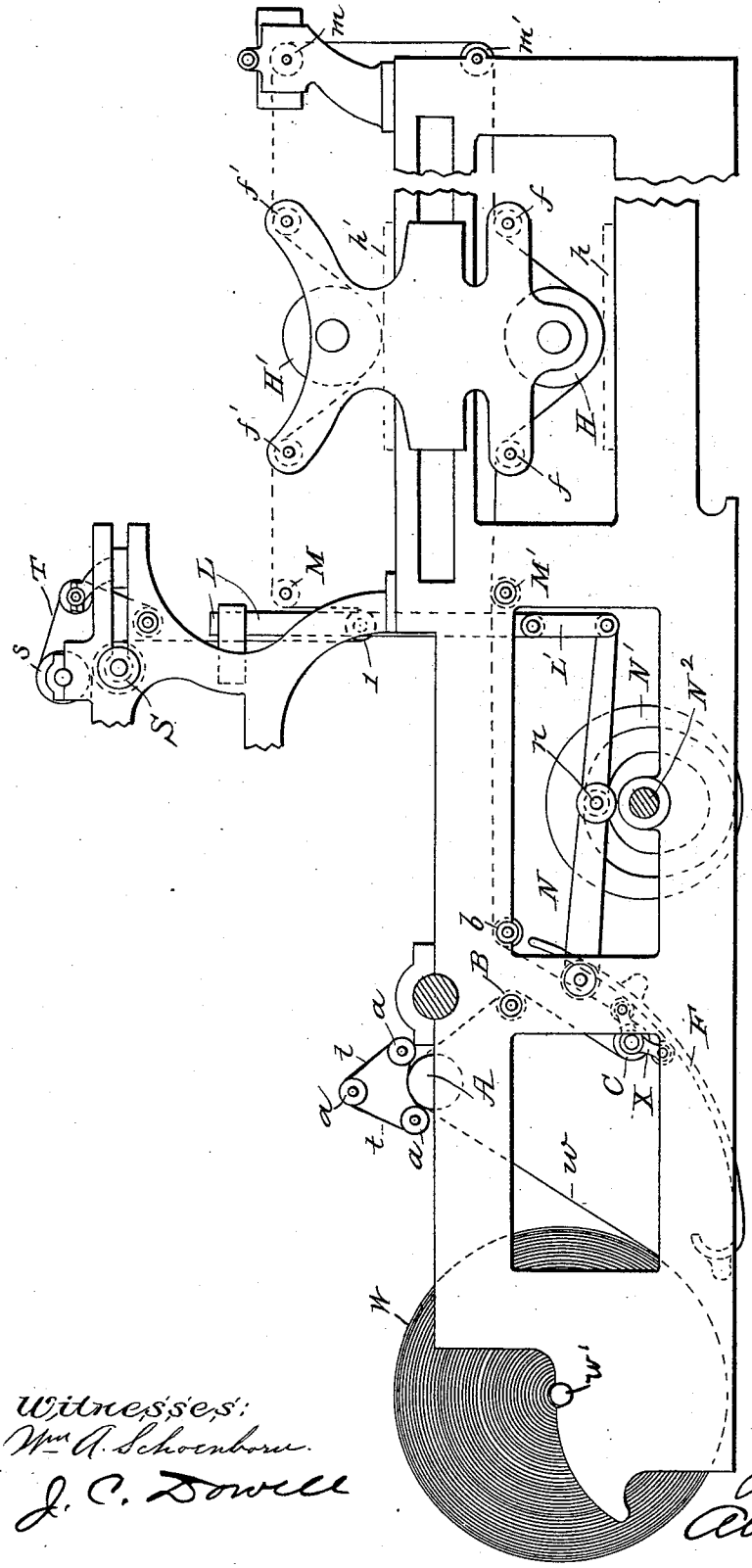
(No Model.)

J. L. COX.

WEB FEEDING DEVICE FOR PRINTING PRESSES.

No. 508,814. Patented Nov. 14, 1893.



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

WEB-FEEDING DEVICE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 508,814, dated November 14, 1893.

Application filed December 6, 1892. Serial No. 454,277. (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-Feeding Devices 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 drawing, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to web printing presses, and its object is to provide an improved system of feeding the web through the press so that it may be positively and continuously drawn from the paper roll into the press and positively and continuously delivered both during and after the making of an impression thereon, and it is especially designed for use in connection with such presses as are shown and described in Letters Patent of the United States, granted to me as follows: No. 459,813, dated September 22, 1891, and No. 478,503, dated July 5, 1892.

The drawing represents a diagrammatical side elevation of a perfecting press, illustrating the improved web feeding and shifting devices.

The type beds *h*, *h'* are arranged parallel, one over the other, and the impression cylinders H, H' co-operate therewith. The web is led in from the feed roll, over a feeding and looping device hereinafter described, to and over a web guide roller M', then between the cylinder H and bed *h*, to and under a guide roller *m'*, up over a guide roller *m*, back between cylinder H' and bed *h'* to and over a roller M, then under a looping roller *l*, all substantially as in Patent No. 478,503 aforesaid, and then up over a delivery roller S over which it is drawn by coacting rollers *s* and coaxing tapes T, substantially as set forth in my Patent No. 459,813. The cylinders and the web guide rollers *f*, *f'* are preferably reciprocated over the beds by means not shown, substantially for instance as described in my aforesaid patents. The web looping roller *l* is journaled in reciprocating bars L which are connected at their lower ends by links L' to the free ends of vibrating levers N which are pivoted at their other ends to the main frame, and are provided at an intermediate point with a wrist pin *n* which enters a cam groove in a wheel N' journaled on a suitably driven shaft N^2 by which means the levers are vibrated. This mechanism is substantially the same in construction and operation as that which is fully shown and described in my application for Letters Patent, Serial No. 444,318, filed August 27, 1892, and need not be further described herein.

The web *w* of paper is led from the roll W which is mounted in supports *w'* to a feed roller A over which it is drawn by means of coaxing tapes *t*, *t*, running over rollers *a*, *a*. The coaxing tapes *t* operate substantially like the delivering tapes T and are driven continuously during the operation of the press by any suitable mechanism as belts or gearing from any suitable source of power, as from the main shaft. The drive mechanism for said tapes is not shown, for its construction is not part of present invention, and can be readily supplied and understood by any one skilled in the art. From the feed devices the web is led over a roller B journaled on the main frame under a governor roller C and then over a roller *b* journaled on the frame beside roller B to roller M'. The web is thus looped under the governor roller C, which as shown is journaled in a wheeled carriage X traveling up and down on curved bars F attached to the main frame constructed substantially like that described in my Letters Patent No. 370,321, of September 20, 1887, and therefore a more detailed description thereof is unnecessary. This governor roller C is a gravity roller, and takes up any slack of the infed web during the taking of an impression, and maintains the tension of the web by its weight. It may be otherwise mounted or guided provided it is left free to take up the slack in web.

The operation of the press is similar to that of the press in Patent No. 478,503, but in place of a positively actuating looping roller, I employ the idler gravity governor roller described, and different feed and delivery mechanism.

The parts are so adjusted that the amount of web positively drawn from the roll W and fed into the press by the feed devices, and

the amount of web positively drawn out of the press by the delivery devices will be equal. While the impressions are being taken, the web is nipped between the beds and cylinders and is of course held thereby, but during this time the roller *l* is raised at such a speed that the loop of web thereunder is paid out to the delivery fast enough to prevent tearing of the web, and at the same time the governor roller C (which is supported by the loop of web thereunder) descends and takes up all the web fed in during the taking of an impression, holding the web always at a constant and uniform tension. As soon as the impression is taken the roller *l* is drawn down and in so doing pulls forward through the press and over the beds the amount of web which was infed and taken up by roll C during the taking of an impression. This amount of web in connection with what is at the same time fed out by the delivery is enough for an impression plus margins.

By the employment of coaxing tapes, rupture of the web is prevented, if for any reason travel of the web is hindered in its course through the press.

As the above described systems of feeding may be applied to various forms of presses, I do not limit myself wholly to the employment thereof only with the presses indicated and herein described.

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

1. The combination in a printing press of two type beds arranged one over the other, and two cylinders cooperating therewith for producing an impression, a positively operated web feed, and a gravity governor roller adapted to take up slack between the feed and printing mechanisms, and web guide rollers with a web delivery mechanism, and a positively operated web looping roller interposed between the printing mechanism and the delivery and supported independently of the web, all constructed and arranged to operate substantially as described.

2. The combination in a printing press of mechanism for taking an impression, and web guide rollers, a continuously acting delivery mechanism, a positively reciprocated web looping and shifting roller between the printing mechanism and the delivery, a positive web feed, and a gravity governor roller, interposed between the feed and printing mechanism, and running on curved ways, adapted to take up slack in and tension the web, substantially as described.

3. The combination of two type beds arranged one above the other, two cylinders coacting with said beds, and web guide rollers for directing the web successively between said beds and cylinders; with a continuously acting web delivery mechanism, a positively reciprocated web looping and shifting roller between the printing mechanism and delivery, a positive web feed, and a gravity governor roller interposed between the feed and printing mechanism, and running on curved ways, adapted to both take up slack in and tension the web, substantially as described.

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

JOSEPH L. COX.

Witnesses:
ALEX. S. STEUART,
ARTHUR E. DOWELL.