

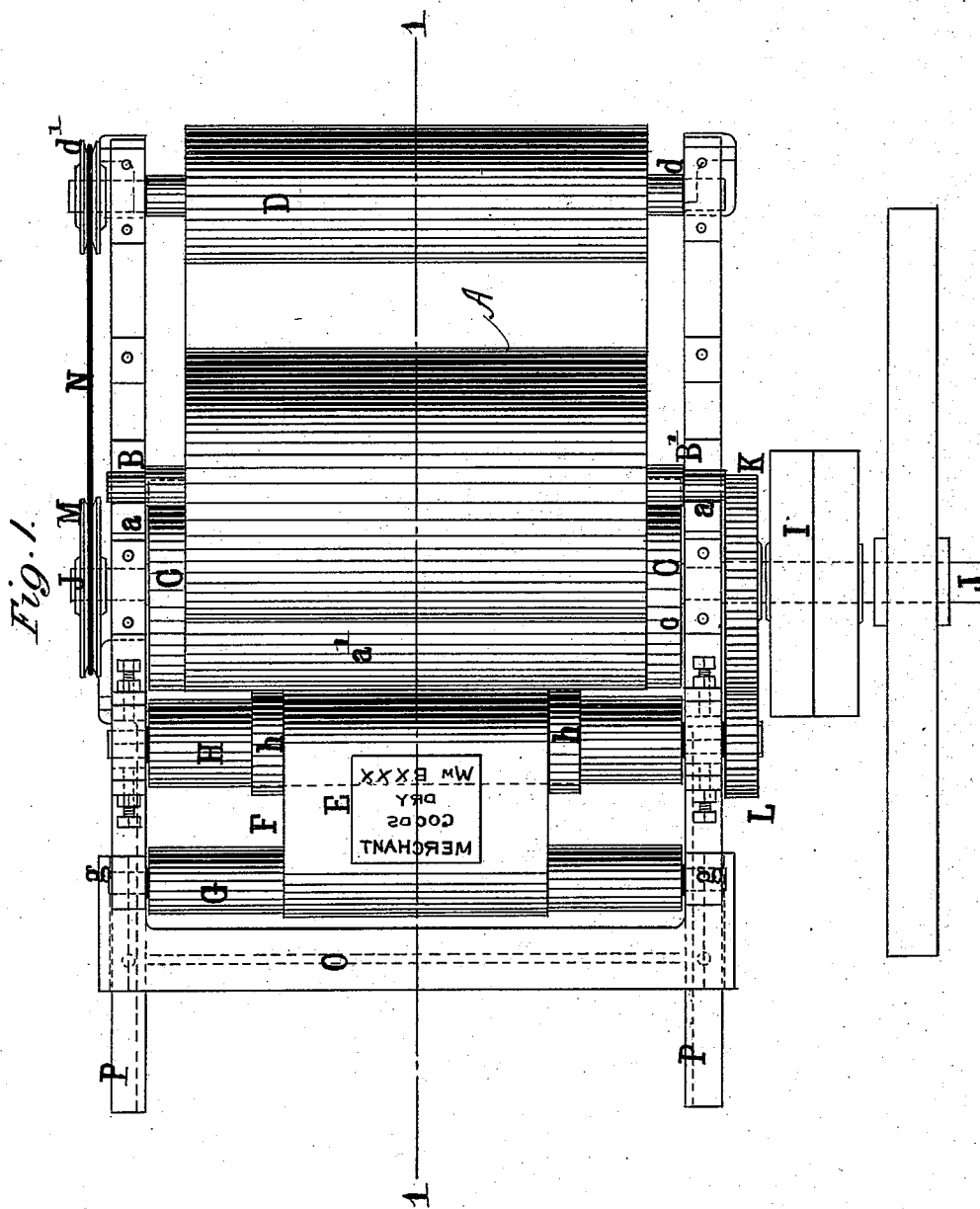
(No Model.)

2 Sheets—Sheet 1.

T. S. BOWMAN.
PRINTING MACHINE.

No. 382,684.

Patented May 15, 1888.



WITNESSES:
J. W. Hoke.
Peter White

INVENTOR:
Thomas S. Bowman
by C. D. Moody atty

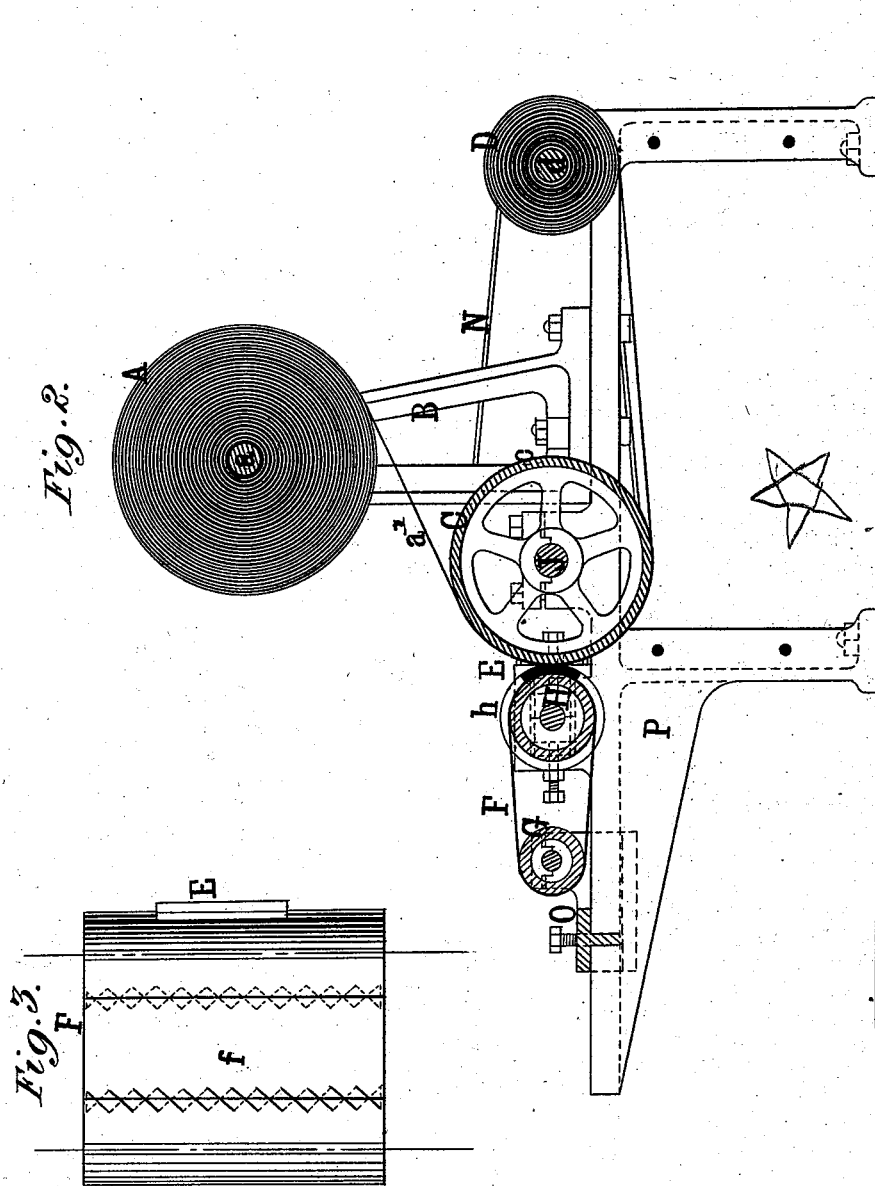
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UNITED STATES PATENT OFFICE.

THOMAS S. BOWMAN, OF ST. LOUIS, MISSOURI.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,684, dated May 15, 1888.

Application filed April 19, 1887. Renewed February 27, 1888. Serial No. 265,432. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. BOWMAN, of St. Louis, Missouri, have made a new and useful Improvement in Printing-Machines, of which the following is a full, clear, and exact description.

The improvement relates to means for readily changing the intervals between the printing of the impressions. It is applicable to several styles of printing-presses; and it is illustrated in connection with a mechanism for printing impressions upon a continuous web of paper, substantially as shown in the annexed drawings, making part of this specification, in which—

Figure 1 is a plan of the improved press. Fig. 2 is a vertical longitudinal section on the line 1 1 of Fig. 1, and Fig. 3 is a plan, upon an enlarged scale, of the form-bearing belt.

The same letters of reference denote the same parts.

Only those parts of the press deemed essential to an understanding of the improvement are included in the drawings.

A, Figs. 1, 2, represents a roll of paper upon a shaft, *a*, journaled in the uprights B B'. The web *a'* is fed past the cylinder C, and is wound, say, into a roll, D. The form used in making the impressions is shown at E. It is attached to a belt, F, which is carried around the rollers G and H. The parts are adjusted to cause the form E, as the belt moves around the rollers G H, to make an impression upon the web *a'* as the web and form move past each other. The form E is flexible—such as a rubber type—to enable it to bend as it is carried around the rollers, and to conform to the belt in its course. Motion is communicated to the movable parts of the machine by means of the pulley I upon the shaft J, which also carries the cylinder C and gear K. The gear engages with the pinion L upon the shaft of the roller H, which is thereby driven and the belt moved, as described. The shaft J is also furnished with a pulley, M, and the shaft *d* of the roll D is provided with a pulley, *d'*, and by means of a belt, N, motion is communicated to the roll D, and that roll thereby wound up. The pulley *d'* is made smaller than the pulley M. The roller H may be provided with bands

h, to cause the web *a'* to be fed properly past the roller H. The distinguishing feature, however, of the improvement is the form-carrying belt F. This belt is carried around at least two rollers, G H, and is made to be lengthened or shortened, in order thereby to cause the form E to be presented at longer or shorter intervals to the web *a'*, and thus produce the impressions farther from or nearer to each other upon the web.

In Fig. 3 is shown a desirable mode of altering the length of the belt—namely, by the insertion of the section *f*, substantially as shown. As the length of the belt is changed, the rollers G H must be correspondingly relatively placed. It is better for the roller H to remain in one position and to change the support of the other end of the belt. To this end, and as a desirable means, the bearings *g* of the roller G are made adjustable toward and from the roller H, the bearings in the present instance being in a cross-bar, O, which can be moved upon the frame P of the machine toward and from the roller H; but other means can be employed for supporting the outer portion of the belt without necessarily altering the position of the roller G. For instance, a third roller, of the nature of an idler-pulley, may be used to take up the slack of the belt when it is lengthened.

The improvement is especially adapted to the printing of impressions upon webs of wrapping-paper. It is customary for merchants to utilize sheets of wrapping-paper as a means of advertising.

I propose with the present machine to print the impression upon the sheets while in the form of a continuous web of paper, and as the impressions are printed to roll the paper up again and to deliver it as a roll to the merchant, who will tear it into sheets as it is used. The sheets, however, must be of various sizes, and the impressions must, accordingly, be printed closer together or farther apart upon the web. This can be accomplished with a form-carrying belt capable of being lengthened and shortened, substantially as described, and with each change in the spacing of the impressions a new roll of paper can be used.

I claim—

1. The extensible form-carrying belt, in combination with the impression-cylinder, as and for the purpose described.
2. The combination of the extensible form-carrying belt, the roller H, and the cylinder C, substantially as described.
3. The combination of the adjustable roller G, the extensible form-carrying belt, the roller H, and the cylinder C, substantially as described.
4. The combination of the shaft *a*, uprights B B', the cylinder C, the extensible form-bearing belt, the roller H, and the adjustable roller G, substantially as described.
5. The combination of the cylinder C, having the continuous surface *c*, with the rollers G H, and the extensible form-carrying belt, substantially as described.

THOMAS S. BOWMAN.

Witnesses:

C. D. MOODY,
A. M. EVERIST.