No. 676,815. Patented June 18, 1901.

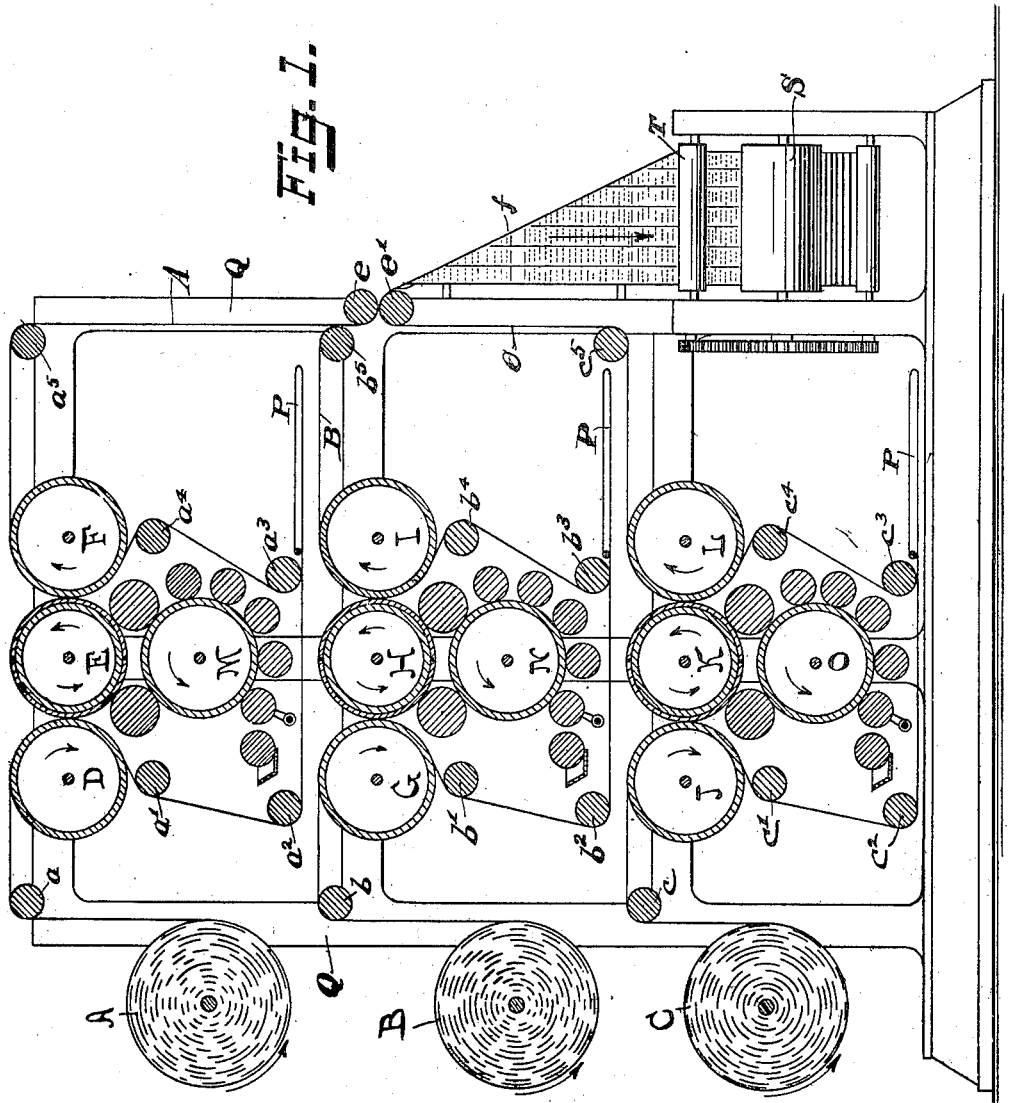
J. L. FIRM.

PRINTING PRESS.

(Application filed Apr. 14, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

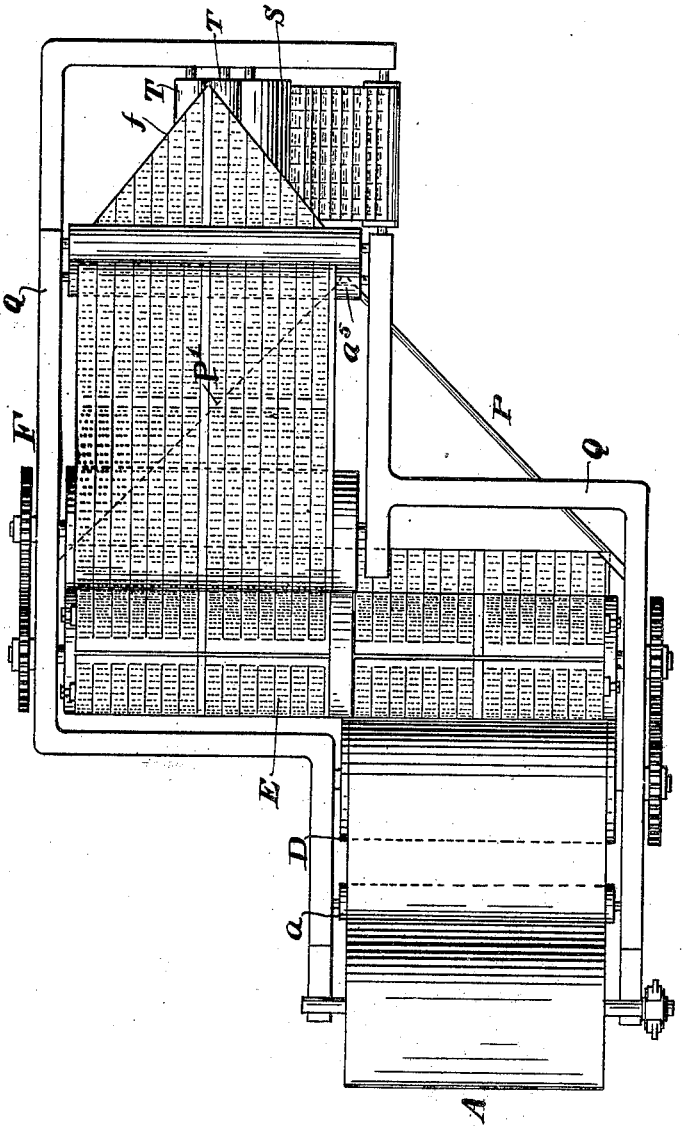

Fig. 2.

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3 Sheets—Sheet 3.

Fig. 3.

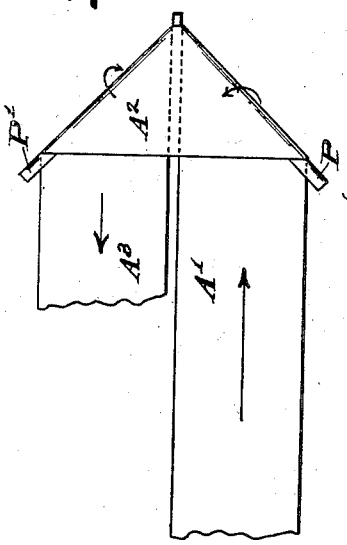
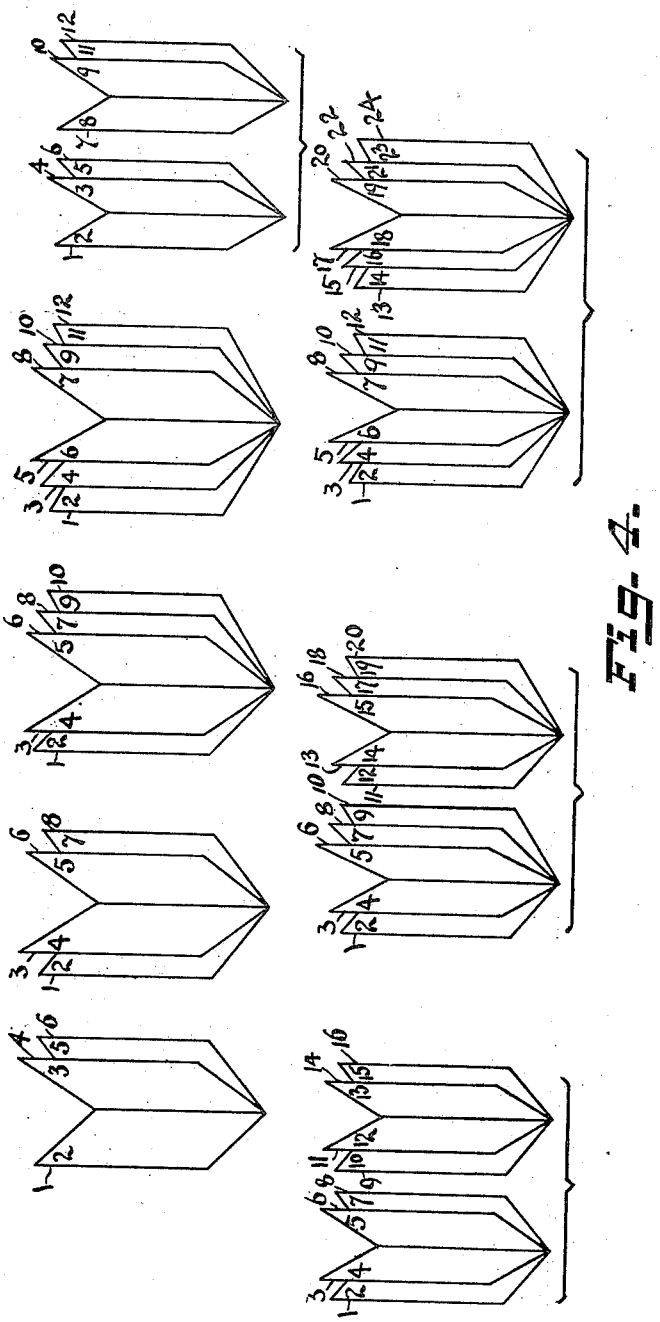


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH L. FIRM, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF SAME PLACE.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 676,815, dated June 18, 1901.

Application filed April 14, 1900. Serial No. 12,847. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. FIRM, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Printing-Press, of which the following is a full, clear, and exact description.

My invention relates to an improvement in printing-presses, and comprises the novel features which will be hereinafter particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of my press. Fig. 2 is a top plan view thereof. Fig. 3 is a detail showing the manner of reversing the web, and Fig. 4 shows in diagram the relative position of the pages in making papers or pamphlets of a different number of pages, the figures used in connection with said diagrams indicating the number of the various pages.

This press is herein shown as consisting of three superimposed decks, although the number of decks may be varied as desired, the webs A, B, and C for the different decks being supported in suitable bearings at one end of the press, and the same webs, after being printed, being associated with each other and passed over a common folder, where they are folded and cut in any usual or desired manner. The three decks are alike in their essential characteristics, and a description of one deck in detail will be sufficient for all of them. The various form and impression cylinders and the inking mechanisms constituting the printing mechanisms are mounted in a frame Q, which also supports the webs A, B, and C and the associating mechanisms. Each deck consists of a central form-cylinder, which is of double length—that is, of a length equal to twice the width of the web. The impression-cylinders are of single length—that is, equal in length to the width of the web. Referring to the upper deck, the central form-cylinder E is provided with plates which are adapted to print opposite sides of the same web, the plates which print one side being grouped upon one end of the form-cylinder and the plates which print the other side being grouped upon the other end of the form-cylinder. The web A after leaving its roll passes over the guide-roller a and thence over the impression-cylinder D, between the same and one end of the form-cylinder E, where one side of the web is printed. The web then passes over the guide-rollers a' and a^2 to the turning-bars P and P', which are shown in detail and in plan in Fig. 3. The portion of the web coming from the roll, which in Fig. 3 is indicated by the reference-letter A', passes over the turning-bar P. The section A^2 of the web thence passes to the turning-bar P', and the next section A^3 passes parallel with the section A', but in the opposite direction. This section then passes over the guide-rollers a^3 and a^4 of Fig. 1 to the impression-cylinder F, about which it passes, being thereby brought in contact with the opposite end of the form-cylinder E. The side of the web which was unprinted by the previous passage between the form-cylinder and the impression-cylinder D is printed. The printed web thence passes over the guide-roller a^5 and thence downward, where it is associated with the webs B and C coming from the other decks, and all three pass between the guide-rollers e and e'. The three webs as combined pass over the longitudinal former f and thence between the folding-rolls T and the transversely folding and cutting mechanism S, which transversely folding and cutting mechanism may be of any ordinary or desired form.

The lower decks of printing mechanisms consist, respectively, of the central form-cylinders H and K, with their respective impression-cylinders G I and J L. Inking mechanisms M, N, and O are provided for the respective decks of printing mechanisms and are herein shown as located beneath the form-cylinders E, H, and K. The web of each printing mechanism is shown as passing about the inking mechanisms. It is evident that the web may be passed over the turning-bars P and P' either from below, as shown in Fig. 3, or from above.

Having thus fully described my invention,

I claim as new and desire to secure by Letters Patent—

1. In a web-perfecting press the combination with a central double-length form-cylinder and two single-length impression-cylinders placed upon opposite sides of and cooperating with opposite ends of the form-cylinder, of means for passing a web successively between said form-cylinder and the two impression-cylinders and means for alternating the sides of the web presented to the form-cylinder, substantially as described.

2. In a web-perfecting press, the combination with a series of parallel decks, each consisting of a double-length form-cylinder and two single-length impression-cylinders placed on opposite sides of and coöperating with opposite ends of the form-cylinder, means for passing a web for each deck successively between the form and each of the impression-cylinders of said deck and means for alternating the sides of the web presented to the form-cylinder, and means for associating the webs from the different decks, substantially as described.

3. In a web-perfecting press the combination with a double-length form-cylinder, two single-length impression-cylinders placed upon opposite sides of the form-cylinder, and to coöperate with opposite ends thereof, and inking mechanisms for said form-cylinder placed beneath it, of means for conducting a web between one impression-cylinder and one end of the form-cylinder, means for conducting the web about the inking mechanism, turning-bars for shifting the web to a parallel path and for reversing its direction of travel while delivering it the same side up, and means for conducting the web between the other impression-cylinder and the other end of the form-cylinder, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of the two subscribing witnesses.

JOSEPH L. FIRM.

Witnesses:
H. L. REYNOLDS,
J. E. GREER.