

No. 677,738.

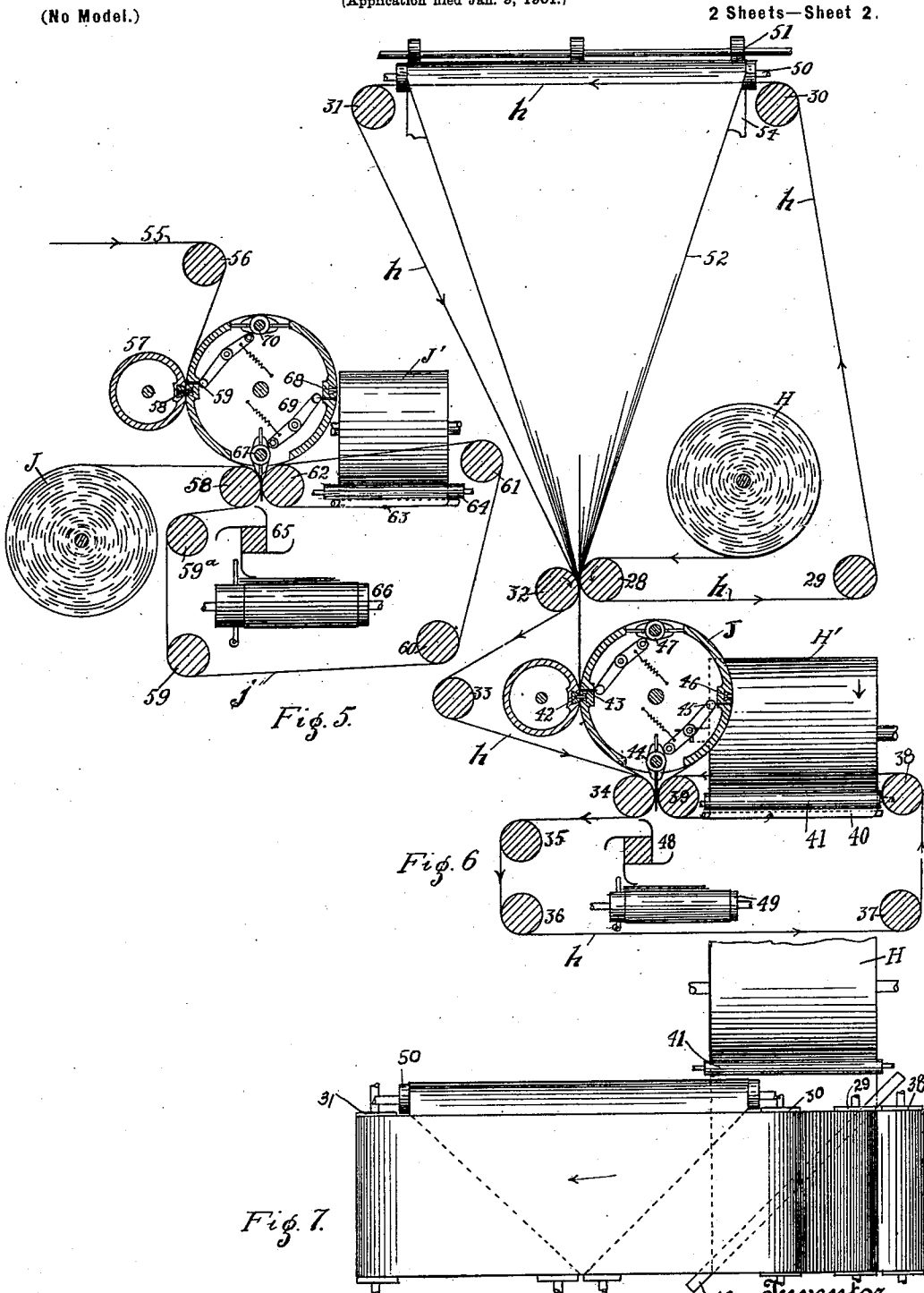
Patented July 2, 1901.

J. L. FIRM.
PRINTING PRESS.

(Application filed Jan. 9, 1901.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
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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. 677,738, dated July 2, 1901.

Application filed January 9, 1901. Serial No. 42,621. (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, Cook county, 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 has particular relationship to means employed for conducting an offset-web in contact with the printed web while the printed web is being cut and folded.

My invention comprises certain novel features, which will be hereinafter described, and 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 diagrammatic representation of a transverse folding mechanism which is employed at the delivery end of a press with my invention combined therewith. Fig. 2 is a plan view of the same. Fig. 3 is a detail showing the slitters used in slitting the printed web. Fig. 4 shows a section of the parallel folding web. Fig. 5 is a diagrammatic elevation showing the folding mechanism and my offset mechanism combined therewith, the form of the latter being slightly different from that shown in previous figures. Fig. 6 is a view showing a slightly-different construction, and Fig. 7 is a plan of the construction shown in Fig. 6.

The object of my invention is to conduct an offset-web in contact with the printed web while the latter is being cut and folded, so as to prevent blurring or offsetting of the fresh ink.

I have herein shown my invention as combined with a form of rotary and transverse folder similar to that shown in United States Patent No. 658,209, granted to me September 18, 1900. As said folding mechanism is the same as that shown in said patent a particular description of the folding mechanism is not herein deemed necessary. This folding mechanism, generally speaking, consists of cylinders B and E, having folding-blades 26 27 and 100 101 thereon, and pins 23 and 24, by which the sections of the web are engaged

and held after being cut by the cutting members 21 and 22. The cylinder C herein shown is the cutting-cylinder.

Referring to Fig. 1, A' represents the printed web being delivered from the machine. This web is conducted over a roller 1, where it may, if desired, be engaged by slitters 2 to divide it into a series of narrow parallel webs. These webs are then conducted between the rotary folding-cylinder B and the cutting-cylinder C, by which they are severed into short sections and are then folded by means of the folding-blades 26 27, acting in conjunction with the rollers 3 and 4 in the well-known manner. The offset-web coming from the roll D may be joined with the printed web A' as the latter passes between the rolls 3 and 4, or, as indicated by dotted lines, the offset-web may be conducted over the roller 1, in which case an additional roller, as 104, should be provided, over which the offset-web is conducted in order to carry it around the cutting-cylinder C, and thus to prevent the offset-web from being cut up into short sections. The offset and printed webs after being carried between the rollers 3 and 4 are conducted horizontally over the roller 5. Said roller 5 and its companion roller 15 act as folding-rollers, in conjunction with the folding-cylinder E and its folding-plates 100 101, to give the printed web and an additional fold. The offset-web in its passage from the rollers 3 4 to the rollers 5 15 acts as a conveying-web for the printed-web section. As the offset-web is beneath the printed web at this point it is not affected by the folding mechanism, but is conducted from the roller 5 in succession about the guide-rollers 6, 7, 8, 9, 10, and 11, being during this course conducted about the delivering mechanism, so that it may be delivered over the roller 4 to contact with the opposite side of the printed web. From the roller 4 the offset-web is conducted upon the upper side of the printed web, over the roller 12, and thence about rollers 105, 13, and 14, by which means it is carried about the folding-cylinder E and is then delivered over the folding-roller 15, at which point it contacts with the opposite side of the printed web. From the roller 15 it is conducted over a turning-bar 16 and rollers 17, two of said

rollers being used and acting in the usual manner to wind the web up as a roll G, said roll being supported upon and turned by contact with the rollers 17.

5 In Fig. 5 a construction is shown in which a single transverse folding-cylinder is used. In this case the offset-web is shown as mounted as a roll J, the web from which passes over one of the folding-rollers 58, and thence
10 by means of guide-rollers 59^a, 59, 60, and 61 it is conducted about the delivering mechanism and brought back to the companion folding-roller 62, over which it is conducted, and from thence it is carried over a turning-
15 bar 65 and between roller 64, upon which the web is wound as a roll J'. In Fig. 6 the offset-web is shown as mounted as a roll H, from which point it is conducted over the roll 28, said roll being one of a pair mounted
20 at the lowermost point or apex of a longitudinal folder 52, said folder being of the form in common use upon web-presses. From the roller 28 the web passes by means of rollers 29, 30, and 31 upward and across the printed
25 web and is thence led downward over the roller 32, which acts, in conjunction with the roller 28, to complete the longitudinal folding of the web. From this point the web may be
30 conducted by any one of the plans previously described through the folding mechanism. As shown in Fig. 6, it is first conducted over a roller 33, which is placed outside of the cutting-cylinder of the folding mechanism, and thence over one of the folding-rollers
35 34, then over guide-rollers 35, 36, 37, and 38, which lead it back to the companion folding-roller 39. After being conducted over the folding-roller 39 it is thence led over turning-bars 40 and between rollers 41, where it is wound up as the roll H'. The delivering mechanism, consisting of the parts 48 and 49 in Fig. 6 and the corresponding parts 65 66 of Fig. 5, are the ordinary folding mechanisms and need not be herein described.
45 From an inspection of these figures it will be evident that the offset-web may be conducted with the printed web over the longitudinal folder and the transverse folders or over either of these folders alone, as desired, and after being used may be wound up ready for use again. In fact, the offset-web used to protect the printed web while being passed through the folders may be one of the webs which has been used in the press for protecting one side of the web while the other side is being printed. In Fig. 1 the dotted lines show a web as being delivered with the printed web as it comes from the machine. This web might be inserted at this point or be the
60 regular offset-web which is used upon the machine.

By the use of guide-rollers in some one of the plans indicated the web may be conducted about such parts of the mechanism as it is
65 desired to prevent its contact with and be made to successively contact with both sides of the printed web. If the offset-web which

was employed in the press be used through the folding mechanism, it should either be divided upon the line of the longitudinal fold 70 or two separate webs be used.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with two sets of folding 75 mechanisms, of a combined offset-web and sheet-carrier and means whereby said offset-web conveys the folded web between said folding mechanisms.

2. In a printing-press, the combination with 80 two separated sheet-manipulating devices, of an offset-web and means for conducting it between said sheet-manipulating devices, along with the sheets being manipulated, whereby the offset-web acts also as a sheet-carrier. 85

3. In a printing-press, in combination with a longitudinal folder, and a transverse folder acting successively upon the web, of rollers engaging opposite sides of the web after leaving the longitudinal folder, and means for introducing offset-webs between the web and said rollers and between the web and the rollers of the transverse folder, substantially as described. 90

4. In a printing-press, the combination with 95 a longitudinal folder, and a transverse folder successively engaging the web, with rollers engaging the outer surfaces of the web after leaving the longitudinal folder, and offset-webs passing with the printed web successively about one of said rollers and one of the folding-rollers of the transverse folder, substantially as described. 100

5. In a printing-press, the combination with a longitudinal folder, and a transverse folder 105 successively engaging the web, with rollers engaging the outer surfaces of the web after leaving the longitudinal folder, an offset-web passing successively about one of said rollers and one of the folding-rollers of the transverse folder and means for carrying the offset-web outside of the transverse folder between said rollers, substantially as described. 110

6. The combination with a web-folding mechanism, of an offset-web and means for 115 conducting it successively in contact with both sides of the folded web, substantially as described.

7. The combination with a web-folding mechanism, of an offset-web and means for 120 simultaneously conducting different parts of the offset-web in contact with opposite sides of the folded web while being folded.

8. The combination, with a web folding and delivering mechanism, of an offset-web, 125 means for successively conducting the offset-web in contact with both sides of the folded web while being folded, and means for conducting the offset-web about the delivering mechanism between said successive contacts 130 with the folded web.

9. The combination with web folding and cutting mechanisms, of an offset-web, means for conducting the offset-web in contact with

the folded web, and means for separating the two webs and for passing the offset-web outside of and about such folding and cutting mechanisms as lie on the same side of the 5 folded web with the offset-web, substantially as described.

10 10. The combination with web folding and cutting mechanisms, of an offset-web, means for conducting the offset-web in contact with the folded web, and deflecting-rollers for the offset-web whereby it may be passed about such folding and cutting mechanisms as lie upon the same side of the folded web as the offset-web.

11. The combination with a transverse folding mechanism having folding-rollers, of an offset-web passing about a folding-roller. 15

12. The combination with a transverse folding mechanism having folding-rollers engaging opposite sides of the folded paper, of an 20 offset-web and means for conducting the offset-web in succession about both folding-rollers between said rollers and the printed web.

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Witnesses:

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