No. 649,958. Patented May 22, 1900.

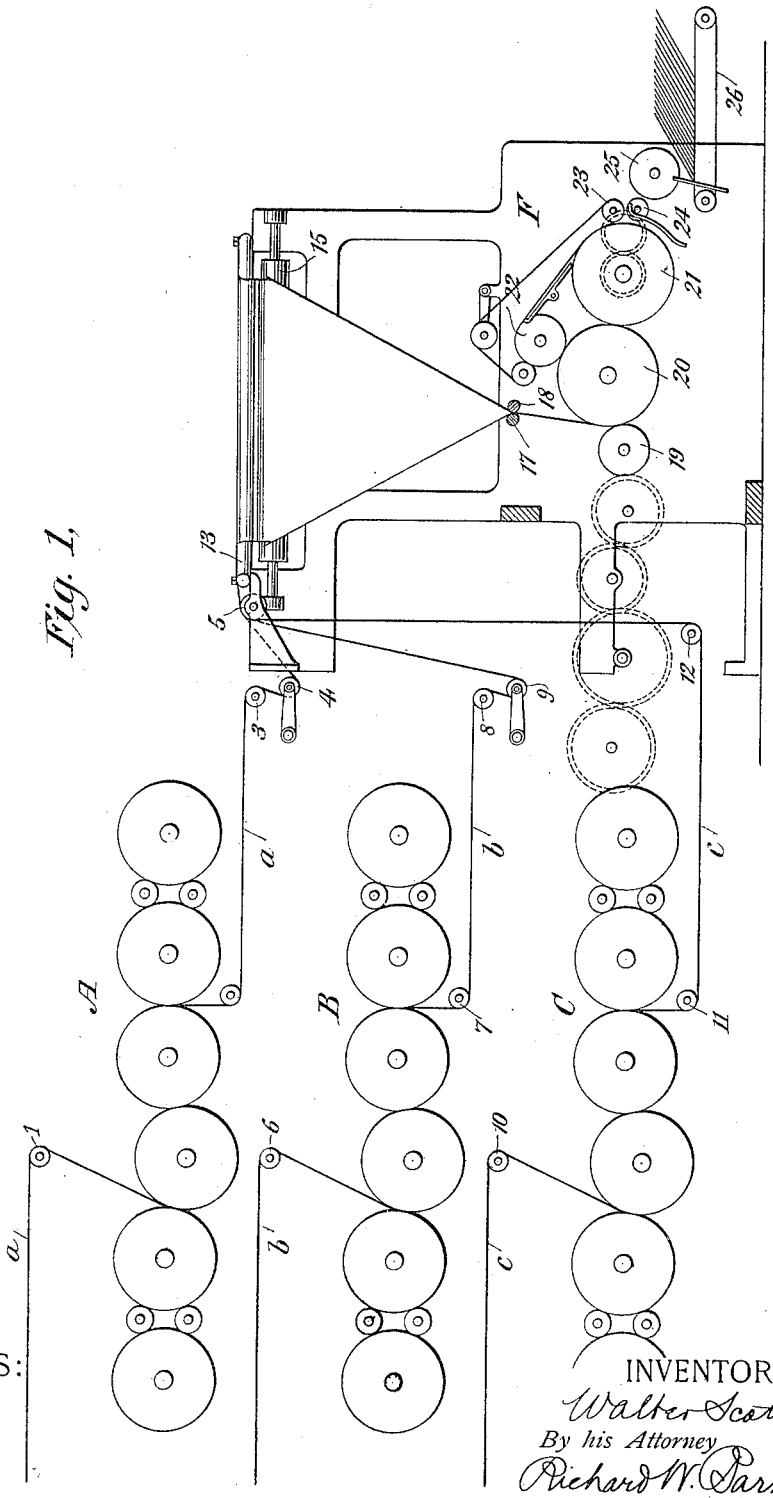
W. SCOTT.

PRINTING AND FOLDING MACHINE.

(Application filed Apr. 7, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



WITNESSES:
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Fig. 2.

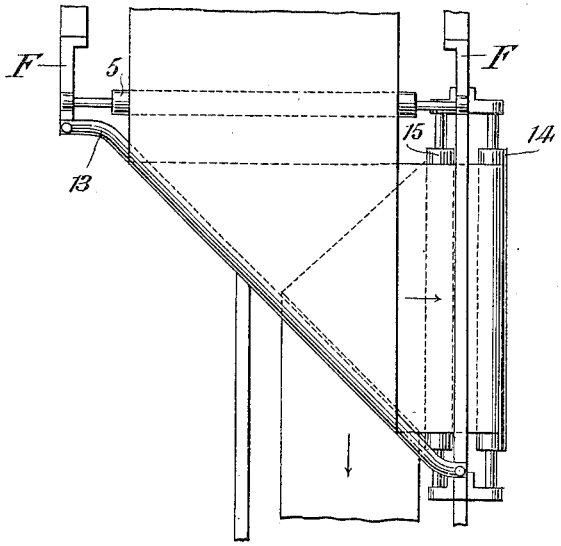
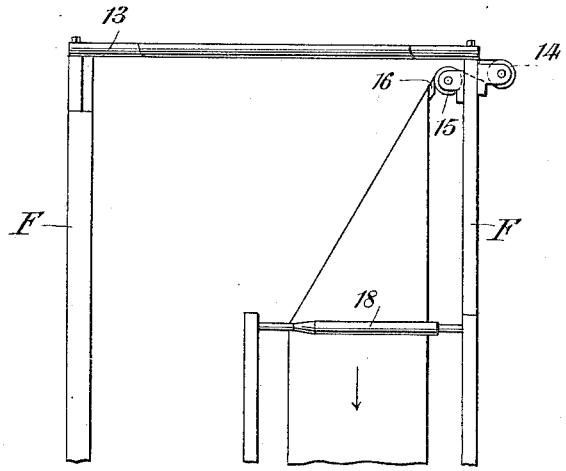


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

PRINTING AND FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 649,958, dated May 22, 1900.

Original application filed June 24, 1895. Serial No. 553,804. Divided and this application filed April 7, 1897. Serial No. 631,089. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCOTT, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Printing and Folding Machines, of which the following is a specification.

This application is a division of my application for Letters Patent filed on the 24th day of June, 1895, serially numbered 553,804, now Letters Patent numbered 584,274, dated June 8, 1897.

The invention relates to an arrangement of web-perfecting presses, web-guides, and a turner-bar, whereby a number of webs are perfected, then associated, and then collectively turned aside and run to the folding, cutting, and delivery mechanism. Prior machines have been arranged to perfect a number of webs, to associate these, and then to run the associated webs to a longitudinal folder whose rollers are at right angles to the cylinders of the presses, as in my Letters Patent granted the 19th day of January, 1892, and bearing number 467,265. Other machines have been arranged to perfect a number of webs in presses, which webs move in opposite directions, the press-cylinders being parallel to the rollers of the longitudinal folder and a turning-bar being employed for each web, as in United States Letters Patent dated the 2d day of April, 1889, and bearing number 400,548. In yet other cases a machine perfecting a single web has been shown, in which machine the cylinders of the press and folder are parallel, a turner-bar being used to guide the web to one side of the folder, as in United States Letters Patent No. 339,532, granted the 6th day of April, 1886. In the first of these cases the delivery is at the side or sides of the machine, and so, also, of the second case, while in the third case the delivery is at the end. The present invention differs from all these in that in it a number of web-perfecting presses are arranged with their cylinders substantially parallel. The webs all move in the same general direction and are associated. Then the associated webs are turned about a single turner-bar and over one or more guides to a longitudinal folder whose cylinders are parallel, or substantially so, to the cylinders of the presses, and the folded product is delivered in the direction of the length of the machine, as at the end. The usual collecting devices may be used in the folding, cutting, and delivery apparatus, if so desired.

The preferred form of the invention is shown in the accompanying drawings, forming part hereof, in which—

Figure 1 is a diagrammatic side view showing three web-perfecting presses arranged one above another, guide-rollers and a guide for associating the webs, a single turning-bar for changing the direction of motion of the associated webs, a longitudinal folder, and cutting and delivery mechanism. Fig. 2 is a partial plan showing the bar or roller on which the webs are associated, the single turning-bar for the associated webs, and the longitudinal folder; and Fig. 3 is a view of the delivery end of the machine, showing the turner and the longitudinal folder.

The three presses A B C are shown with their cylinders parallel and with fixed guides, as the rollers 1 2 3, 6 7 8, 10 11 12, for their respective webs *a b c*, the adjustable or usual register-rolls 4 9, and the guide or roller 5, on which the webs *a b c* are associated. From the guide 5 the associated webs pass to the turner-bar 13, (which is in the instance shown at an angle of forty-five degrees to the course of the webs,) which turns the webs toward the side of the machine. In the preferred form of the invention the webs now pass over and down about a guide or roller 14, over a second guide or roller 15 onto the triangle or former 16 of a longitudinal folder, and down between the external guides or rollers 17 18 at the apex of the former. Thence the folded webs pass to the cutting-cylinders 19 20, the take-off cylinders 21 22, the folding-rollers 23 24, delivery-cylinder 25, and onto the delivery (traveling) tapes 26. I remark that the use of two guides or rollers, as 14 15, between the turner-bar 13 and the former 16 allows of the placing of the former 16 within the side frames F, in which the cylinders of the presses are journaled. I also remark that the use of the two guides 14 15 has the further advantage of compensating for the displacement of the webs relatively to each other

by the bar 13, so that the loss by the top web or bar 13 is restored by the roller 14 and the gain by the bottom web on bar 13 is lost by that web on guide 14.

I have not illustrated the details of the cutting and delivery devices, as these are shown and described in my patent aforesaid.

By the foregoing arrangement of parts I reduce the lengthwise space occupied by the machine, provide for the production of four-page, six-page, eight-page, ten-page, and twelve-page copies, or by collecting cuts by the cylinders 22 21, as in my said Letters Patent set forth, I provide for sixteen-page, twenty-page, and twenty-four page copies in addition to those already named. By running but one press, with forms for printing two pages abreast thereon and not collecting, a four-page product is had. By running two presses, one having a full-width web and the other a half-width web, and printing two pages abreast on the wider web and a single page on the narrower web and then associating the two webs and not collecting a six-page product is secured. By running two presses each with full-width web having two pages abreast thereon an eight-page product is had. By running two presses as last described and the third press with a half-width web having a single page thereon on each side, associating, and folding a ten-page copy is produced. By running three presses each with a full-width web having two pages abreast thereon a twelve-page copy is had. By running two presses, as above described for eight-page copies, and by collecting the cuts a sixteen-page copy is produced. By running all three presses and arranging as for the ten or twelve page products and also collecting twenty or twenty-four page copies are secured. The addition of one or more presses and webs would merely increase the range of the products, it being assumed that each sheet contains but four pages.

While I have shown presses which perfect webs two pages wide, I am aware that presses printing webs four pages wide are in use and that my invention is capable of use with each longitudinal half of the associated webs from a number of such presses.

For the purposes of this specification I have taken the longitudinal folder as exclusive of the guide or roller 15.

What I claim is—

In a web-printing machine, the combination of a number of web-perfecting presses whose webs all move in the same general direction, a guide 5 on which the said webs are associated, a single turner or angle bar as 13 for changing the direction of motion of said associated webs into another plane, a longitudinal folder arranged in line with said presses, said folder having its rollers or cylinders substantially parallel to the cylinders of said presses or the guide 5, and two guides as rollers 14 15 for reversing the direction of travel of the webs and so compensating for the displacement of the webs relatively to each other by the turner-bar and directing the associated webs from the turner to the folder, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 1st day of April, A. D. 1897.

WALTER SCOTT.

Witnesses:
CHAS. A. BRODEK,
RICHARD W. BARKLEY.