

No. 677,736.

Patented July 2, 1901.

J. L. FIRM.
METHOD OF USING OFFSET WEBS.

(No Model.)

(Application filed Feb. 23, 1900.)

2 Sheets—Sheet 1.

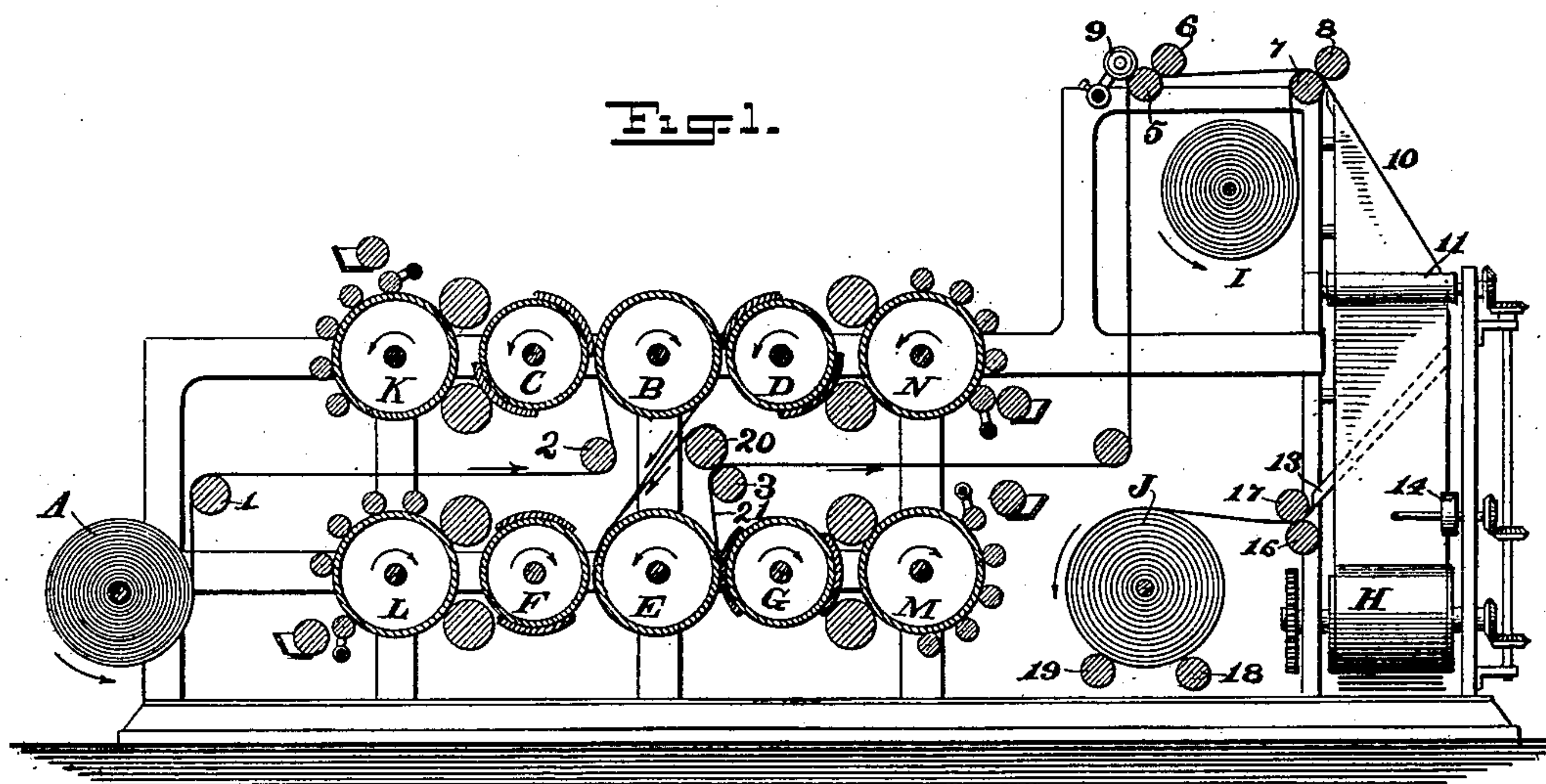
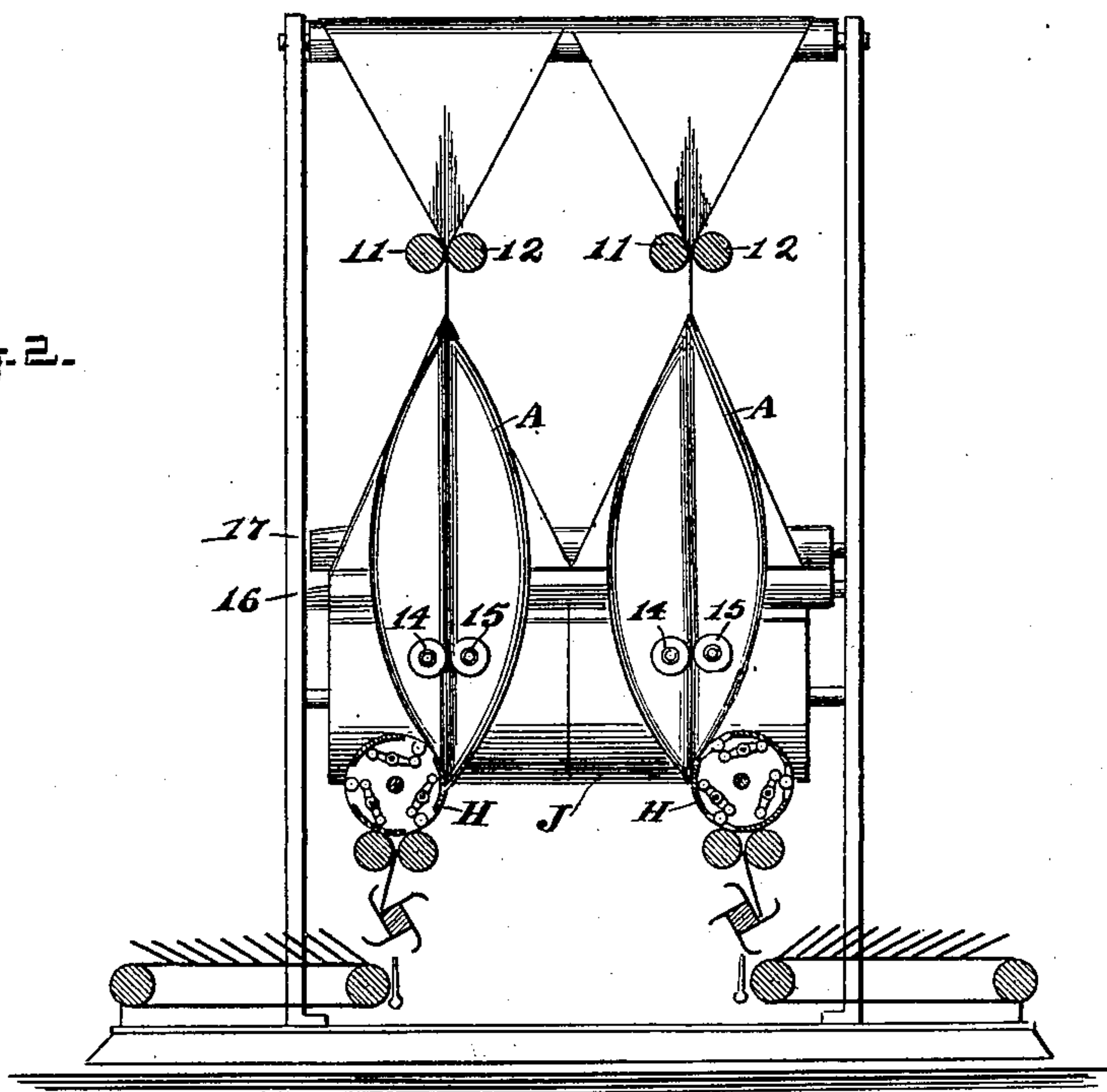


Fig. 2.



Witnesses
Geo. W. Taylor,
H. L. Reynolds.

Inventor
Joseph L. Firm.
By his Attorneys
Hoffert & Hill

No. 677,736.

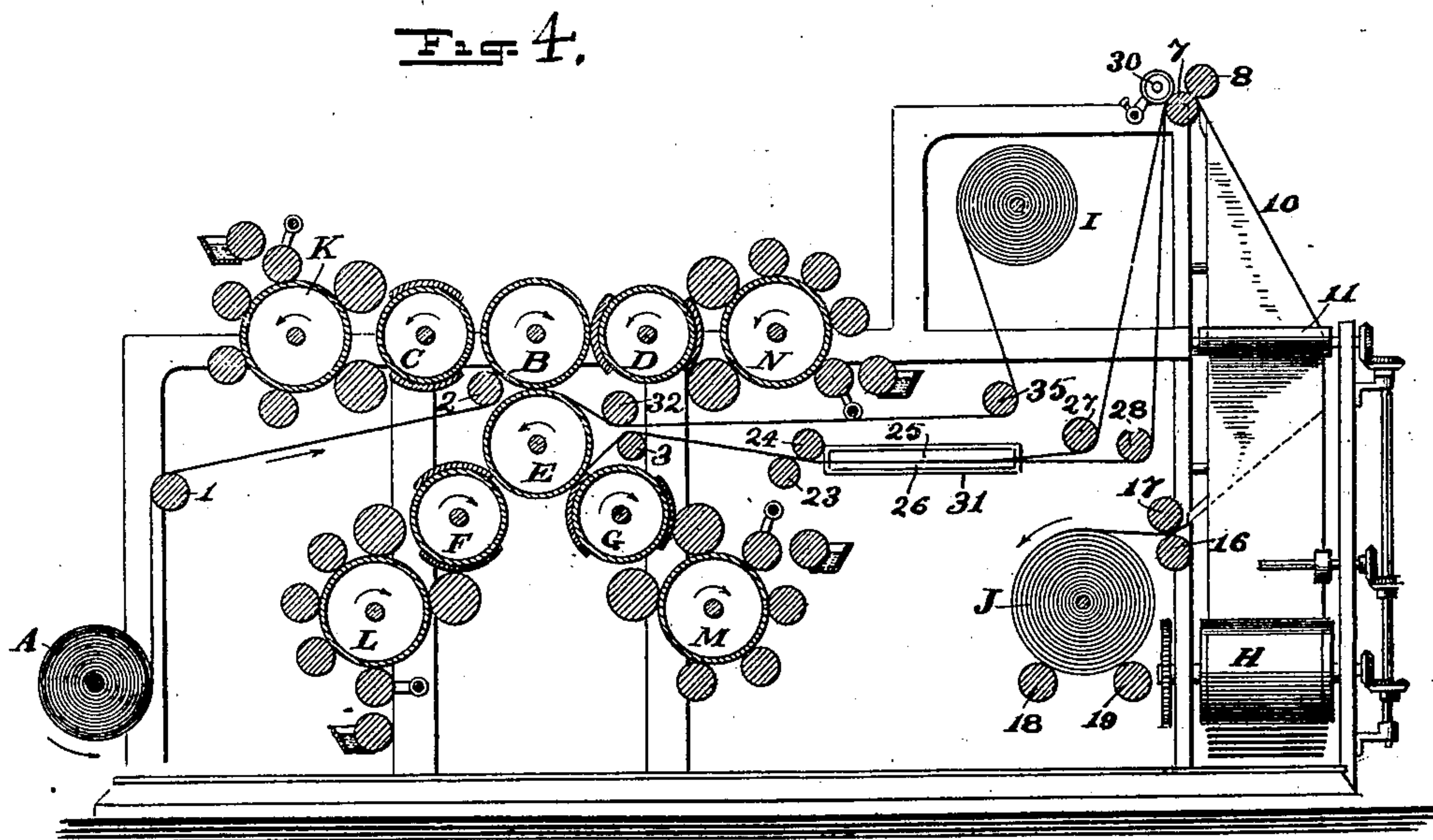
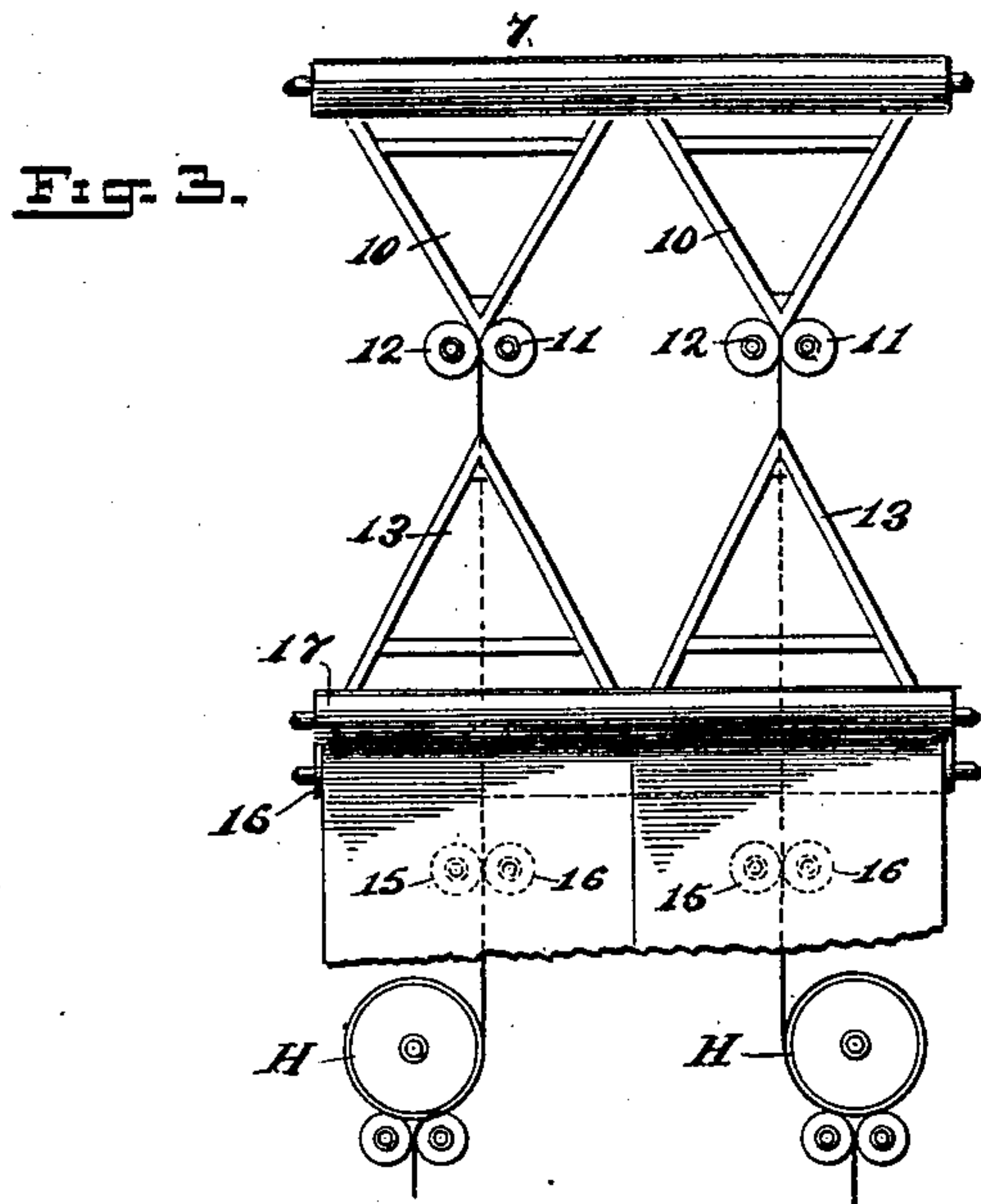
Patented July 2, 1901.

J. L. FIRM.
METHOD OF USING OFFSET WEBS.

(Application filed Feb. 23, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
Geo. W. Maylor
H. L. Reynolds.

Inventor
Joseph L. Firm.
By his Attorneys
Gifford & Full

UNITED STATES PATENT OFFICE.

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

METHOD OF USING OFFSET-WEBS.

SPECIFICATION forming part of Letters Patent No. 677,736, dated July 2, 1901.

Original application filed January 11, 1900, Serial No. 938. Divided and this application filed February 23, 1900. Serial No. 6,138. (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 certain new and useful Improvement in Methods of Using Offset-Webs, of which the following is a specification.

My invention relates to an improved method of handling the web of a rotary printing-press, in conjunction with an offset web or webs, so as to prevent the smearing of the printing-surfaces when they are folded together.

My invention comprises the novel method hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a sectional side elevation of a press, showing devices attached thereto for carrying out my invention. Fig. 2 is an end elevation of such a press, showing the folding mechanism used from the outside. Fig. 3 is an end elevation of the folding mechanism of such a press from the inside. Fig. 4 is a sectional side elevation of a press, showing devices attached thereto for handling the web in a slightly-different manner from that shown in Fig. 1.

The above-mentioned drawings represent a mechanism which may be employed in carrying out my method; but it is not to be understood that I confine myself solely to the use of this particular mechanism for that purpose, but herein claim my method irrespective of the means by which it is carried out. The mechanism herein shown is given simply as an illustration of means by which the method may be carried out. This mechanism is, however, the subject of a patent application filed by me on the 11th day of January, 1900, Serial No. 938, of which application this is a division.

One difficulty found in using a rotary printing-press for magazine work and other fine printing, and especially where illustrations are used, is that offsetting from the printed web is difficult of prevention in the usual presses. I have obviated this difficulty by means of the mechanism above illustrated

and by the method which will be hereinafter described.

The mechanism used consists, as herein illustrated, of two banks or sets of printing mechanisms, the upper bank consisting of a central impression-cylinder D, two form-cylinders C and E, arranged on opposite sides of the impression-cylinder, and inking mechanisms M and K for said form-cylinders. The lower bank of printing mechanisms consists of similar devices—namely, an impression-cylinder E, two form-cylinders F and G, and inking devices L and M. The web to be printed upon is shown at A suitably supported upon one end of the frame. The web is led from the roll over the guide-rollers 1 and 2 about impression-cylinder B, thence downward and about impression-cylinder E and over guide-rollers 3 and 4, between guide-rollers 5 6 and 7 8, to the former 10, which is constructed as an ordinary former, which folds the web longitudinally. The slit 9 is shown in Fig. 1 in connection with the pair of guide-rollers 5 and 6. An offset-web 21 is shown as passing about the lower impression-cylinder E and a roller 20. The roller 20 is placed at such a distance from the impression-cylinder E that the offset-web in passing about the impression-cylinder will not have the same portion thereof registering with the pages upon the printed web at each revolution. The offset-web 21 is an endless web and takes care of the offset from one side of the printed web. The offset from the other side of the printed web is taken care of by a second web, which is placed in the press in the form of a roll I, which is supported in suitable bearings in the upper part of the press-frame just back of the former 10. The offset-web from this roll is conducted first through either the pair of guide-rollers 5 6 or 7 8, as desired. In case it is desired to slit the offset-web in the construction shown in Fig. 1 the web will be conducted first between the guide-rollers 5 and 6. If it is not desired to slit the web, it may be first conducted between the guide-rollers 7 and 8. The offset-web is thus folded inside of the printed web.

Both webs after folding pass between the rollers 11 and 12 and then engage an auxiliary former 13, which has its apex upward and acts upon the two webs to partially open them out. The offset-web is then conducted from this former between guide-rollers 16 and 17 and is then rolled up into a roll J, which is supported and turned by rollers 18 and 19. The printing-web A passes downward and has its two portions brought together and is conducted to transverse folders H, which are of a construction common in the art and is thereby folded transversely and cut into page lengths. This transverse folder being well known in the art and not essential to my present invention will not be more fully described. To prevent the printed web from being drawn out with the offset-web, the folded edge thereof is grasped between rollers 14 and 15. It will be seen that the offset-web I is first folded longitudinally with the printed web, and then both are partially unfolded and the offset-web rewound, ready for use a second time, while the printed web is folded together again and operated upon by any suitable folding and cutting mechanism.

By the above method of handling the offset-web it is possible to use a rotary press for high-class printing and to fold the printed matter in any manner common in connection with such presses without having the printed pages smeared by such operation. In consequence of this it may be possible to use rotary presses for such work, and thus greatly increase the rapidity and cheapness of the work.

In Fig. 4 a mechanism is shown for handling the offset-web in a slightly-different manner, the principle, however, remaining the same as that shown in Fig. 1. In this figure the offset-web is mounted in the same place, but is conducted from the roll downward beneath guide-roller 35, and thence toward the center of the press beneath a guide-roller 32, and then about the lower impression-cylinder E. From this point it is conducted over the guide-roller 3, together with the printed web, both webs being conducted between the guide-rollers 23 and 24. At this point the printed web is conducted between two turning-bars 25 and 26 and then beneath the guide-rollers 27, from which point it is conducted upwardly and between the guide-rollers 7 and 8, where it may be acted upon by a slit 30, if desired. The offset-web after passing between the guide-rollers 23 and 24 is passed about one of the turning-bars, then about a roller 31, which lies alongside of and parallel with the direction of travel of the web, and then over the other turning-bar, by which device it is transferred from the upper to the lower side of the printed web. It

is thence conducted about the guide-roller 28, and thence upwardly between the guide-rollers 7 and 8, at which point it joins the printed web, and being beneath the same is folded within it as it passes over the former 10 in the manner previously described. By this method a single offset-web is made to answer for both sides of the printed web, and the offset-web 21 (shown in Fig. 1) is done away with.

I claim—

1. The method of protecting webs in printing-presses by the use of an offset-web which consists in folding the printing and offset webs together longitudinally and then removing and opening out the offset-web, substantially as described.

2. The method of protecting a web during printing which consists in running an offset-web therewith and folding the two together longitudinally, then opening and rolling up the offset-web, substantially as described.

3. The method of protecting a web during printing which consists in running an offset-web therewith and folding the two together longitudinally with the offset-web inside, then partially opening both webs, removing the offset-web, completing the opening thereof and rolling up the same, substantially as described.

4. The method of protecting a web during printing which consists in running an offset-web in contact with the first-printed side of the web while printing the opposite side, then transferring the offset-web to the opposite side of the printed web between the points where it is printed and folded, substantially as described.

5. The method of protecting a web during printing which consists in running an offset-web in contact with the first-printed side of the web while printing the opposite side, then transferring the offset-web to the opposite side of the printed web, longitudinally folding the two webs together, and then removing the offset-web from between the folds of the printed web, substantially as described.

6. The method of protecting a web during printing which consists in running an offset-web in contact with the first-printed side of the web while printing the opposite side, then transferring the offset-web to the opposite side of the printed web, longitudinally folding the two webs together, and then removing the offset-web from between the folds of the printed web, then rolling up the offset-web, substantially as described.

JOSEPH L. FIRM.

Witnesses:

H. L. REYNOLDS,
FRED S. KEMPER.