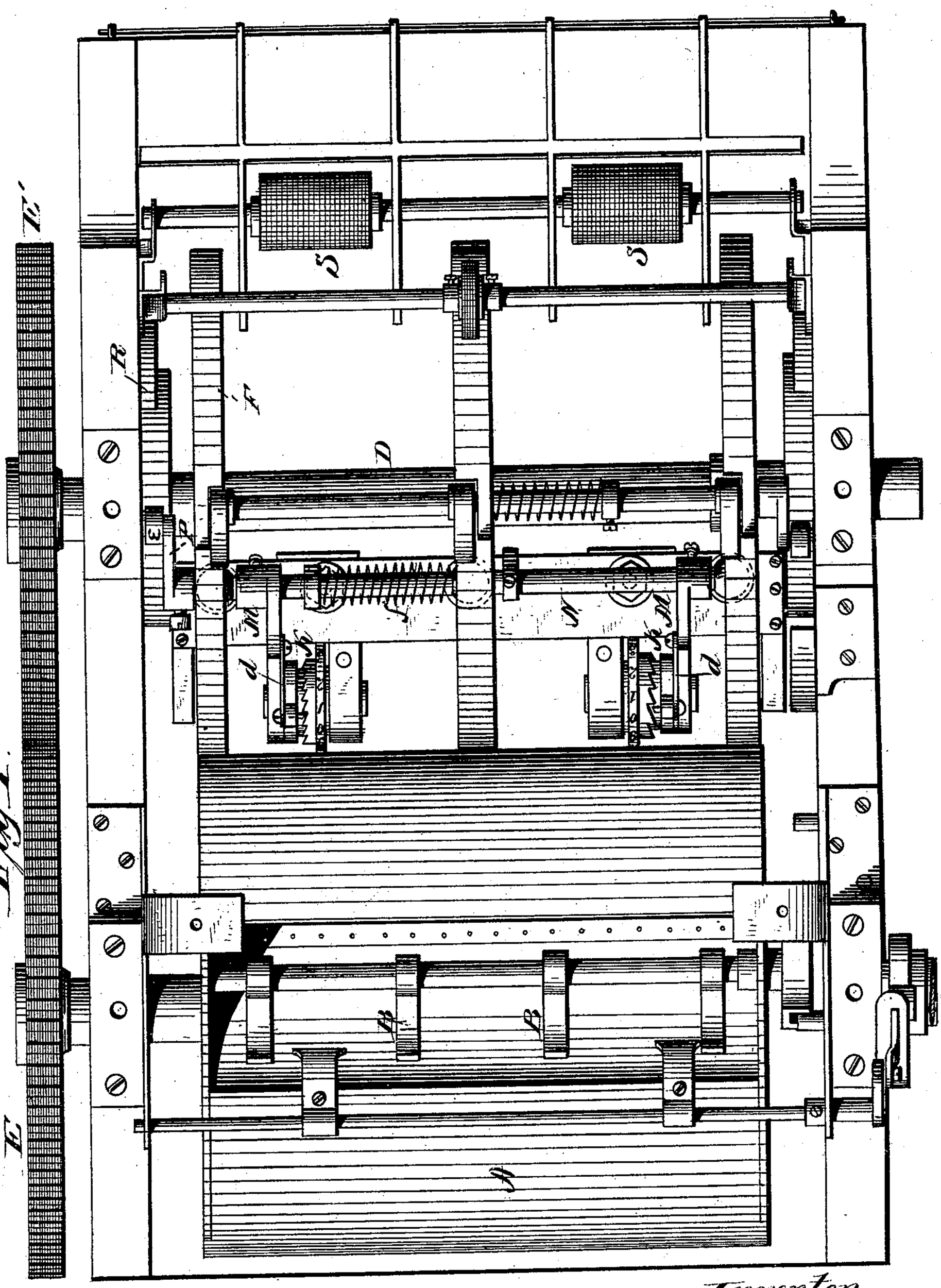
(No Model.) 4 Sheets—Sheet 1.

W. ROBINSON.

Paging and Numbering Machine.

No. 230,198. Patented July 20, 1880.



Witnesses.
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C. L. Event.

Inventor:
Wm Robinson

(No Model.) 4 Sheets—Sheet 2.

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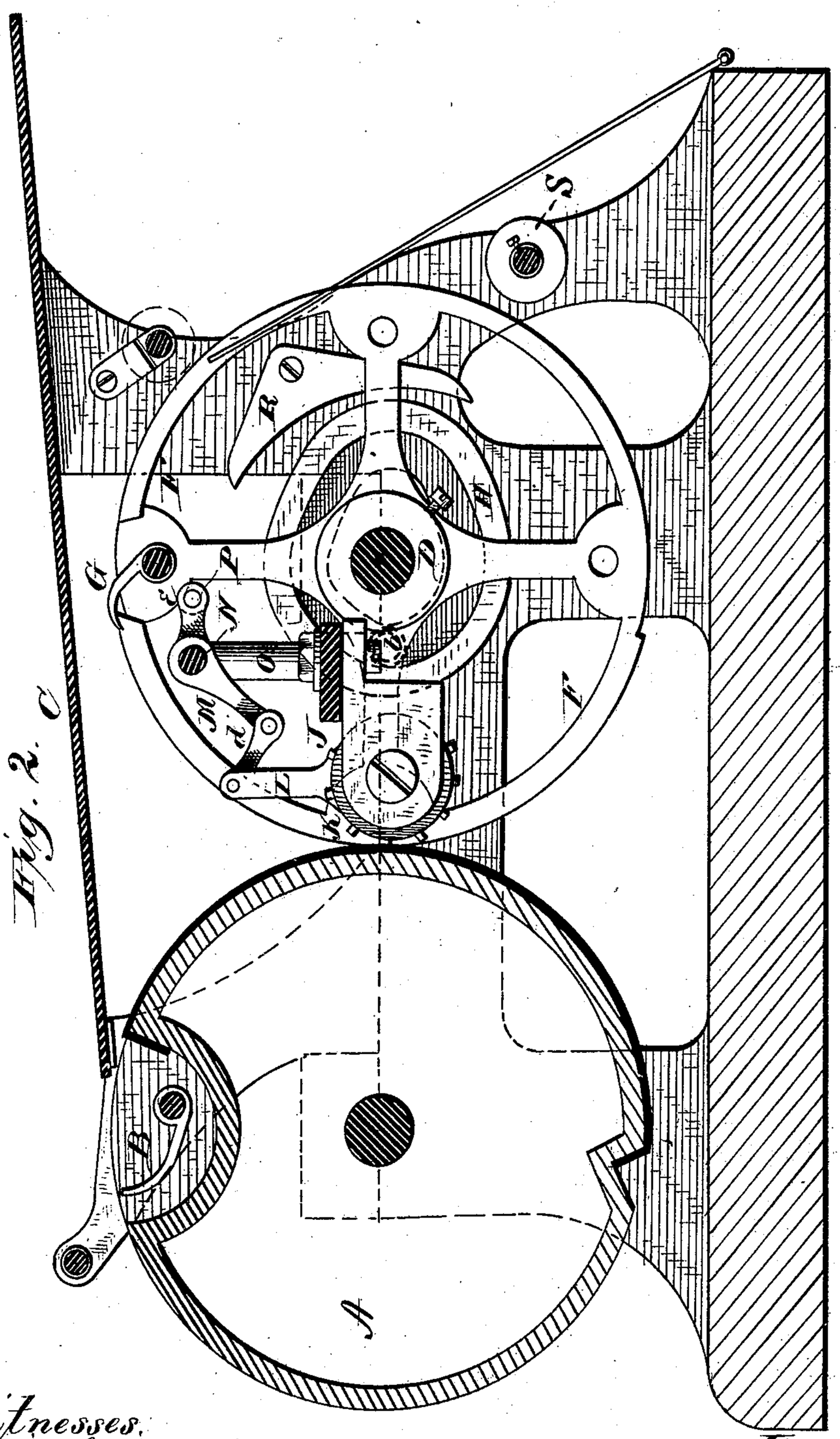

Fig. 2.

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(No Model.) 4 Sheets—Sheet 3.

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Fig. 5.

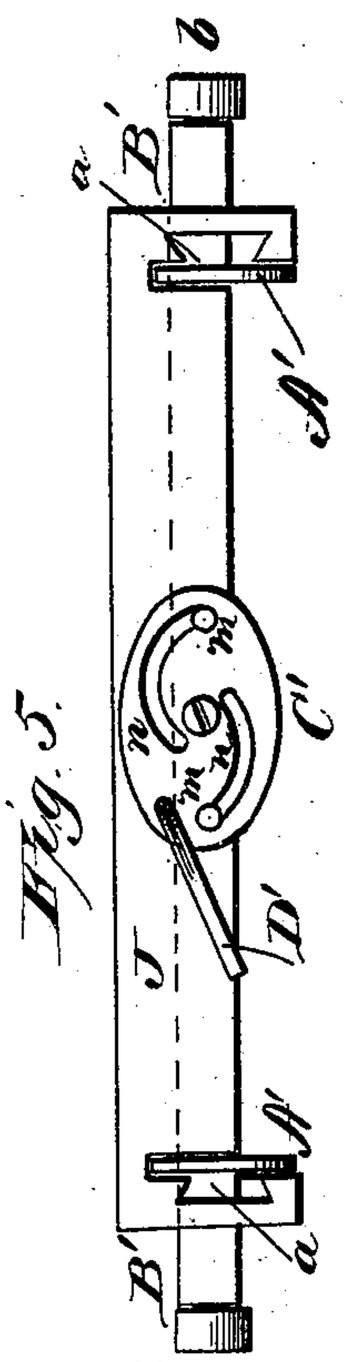


Fig. 4.

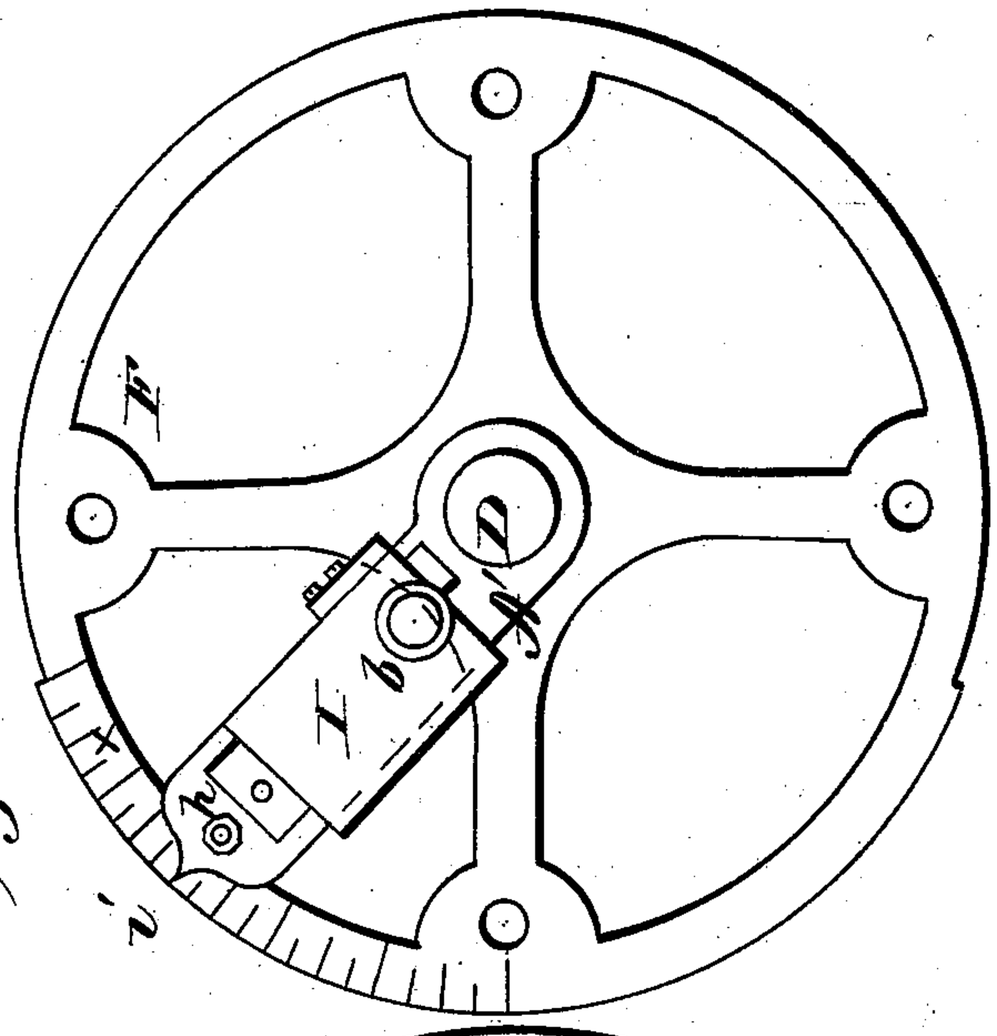


Fig. 3.

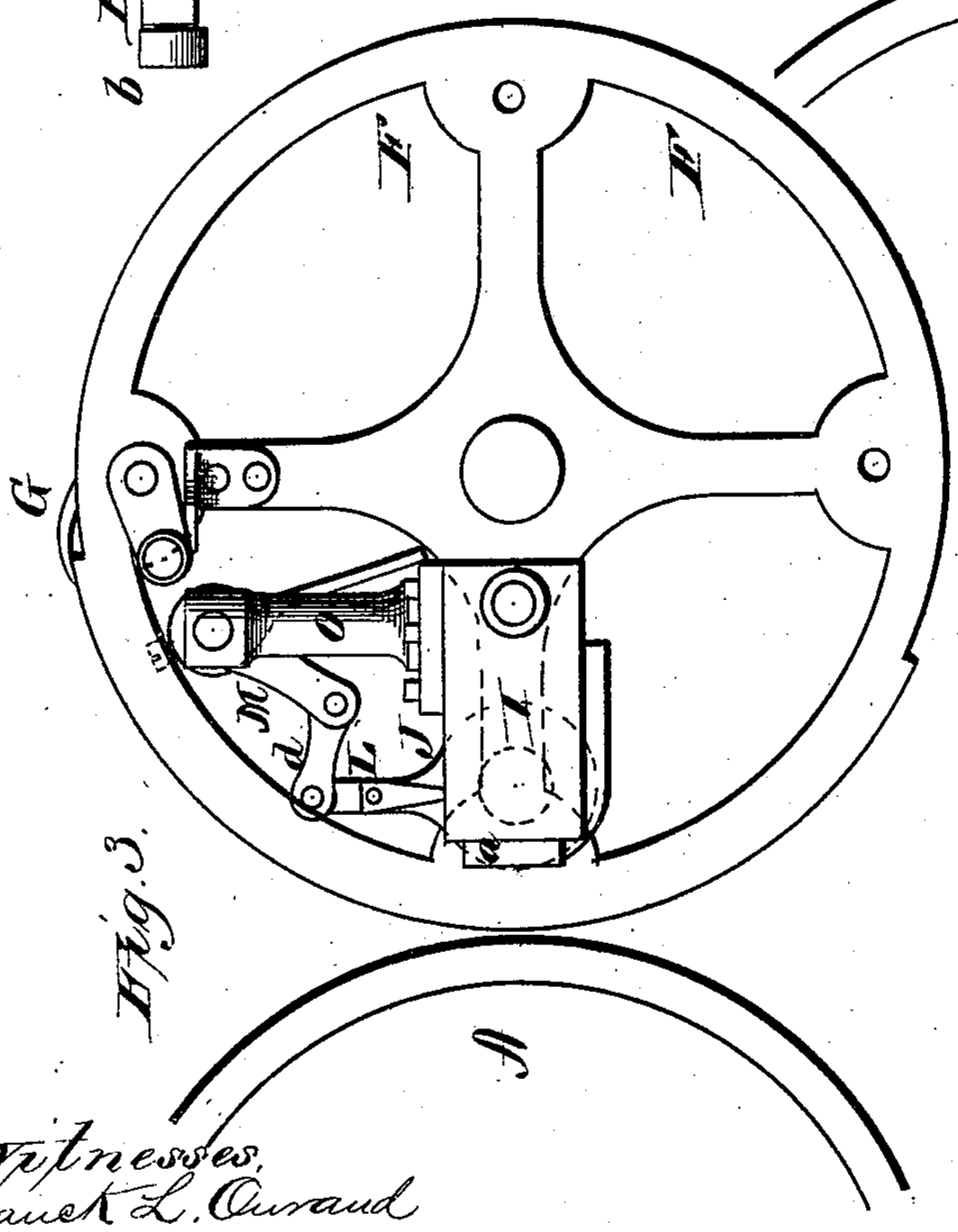
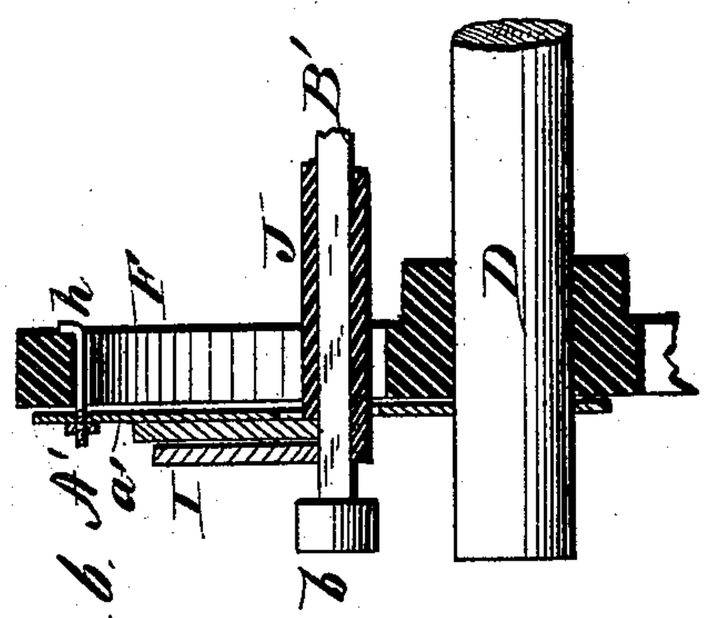


Fig. 6.



Witnesses,
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(No Model.)

4 Sheets—Sheet 4.

W. ROBINSON.

Paging and Numbering Machine.

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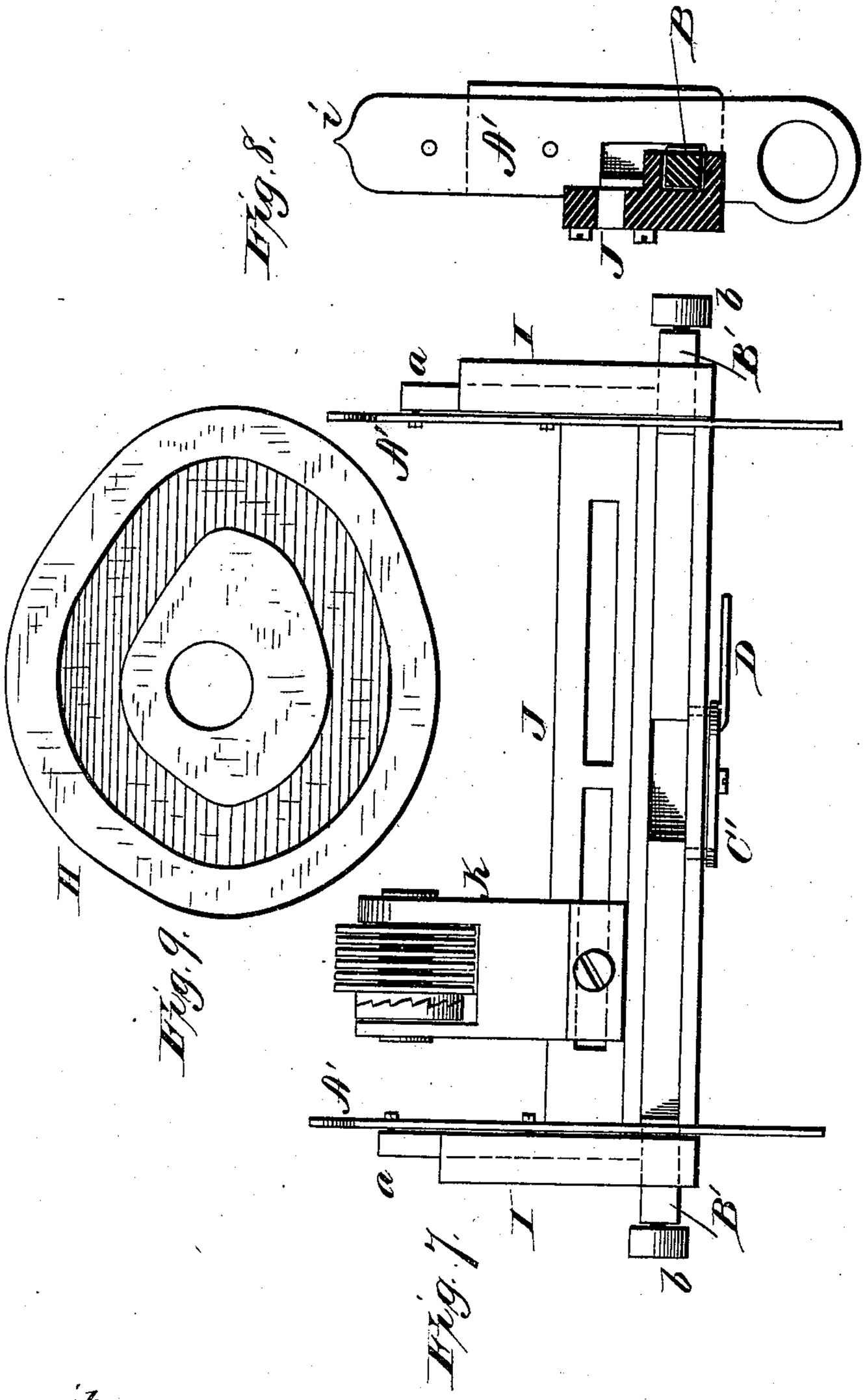

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Franck L. Durand.
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Inventor.
Wm Robinson

UNITED STATES PATENT OFFICE.

WILLIAM ROBINSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

PAGING AND NUMBERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 230,198, dated July 20, 1880.

Application filed June 3, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ROBINSON, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to printing-presses; and it consists in the construction and arrangement of a device for numbering, and also interlining with different colors, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of a part of a printing-press embodying my invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a side view of the device when made stationary in its cylinder. Figs. 4, 5, 6, 7, and 8 show the device when made adjustable in the cylinder. Fig. 9 is a view of one of the operating-cams.

A represents the ordinary revolving cylinder of a printing-press, under which the type-bed is reciprocated by any of the known or usual means, said cylinder being provided with a series of nippers, B, for taking the sheet of paper from the feed-table C and holding the sheet while being carried around the cylinder and receiving the impression from the form on the reciprocating type-bed.

The shaft of the cylinder A is provided with a cog-wheel, E, which meshes with a similar gear-wheel, E′, upon one end of a shaft, D, and on this shaft are, by means of suitable radial arms or otherwise, secured two, three, or more reels or wheels, F F. These wheels or reels are provided with nippers G, for taking the sheet of paper from the cylinder A and carrying it partially around the reels F to the point where it leaves the press. There being nothing new in the construction of these nippers, it is unnecessary to go into any detailed description of the same.

On the inside of the press-frame, on each side, is secured a cam, H, the peculiar shape of which is fully shown in Fig. 9, and through these cams the shaft D passes.

Upon the outside wheels or reels, F, is formed a dovetailed guide, *a*, upon which moves a corresponding slide, I, and the two slides are connected together by means of a plate or bar, J, so as to move simultaneously out and in, as hereinafter described.

The slides I I and bar J form a frame, which has at each end a projecting stud carrying a roller, *b*, and this roller works in the cam H. The plate or bar J carries one or more heads, K, which may be for numbering purposes or for interlining—that is, to print in different colors. If intended for numbering purposes, the heads K are constructed in the same manner as those usually employed in the ordinary numbering-machines. The ratchet-lever L of each numbering-head is by a link, *d*, connected with an arm, M, secured to a shaft, N, which has its bearings in posts O on the bar J. One end of the shaft N is provided with a crank, P, which carries a roller, *e*, to ride over an incline, R, attached to the frame of the press, for the purpose of turning the shaft a certain distance, sufficient to cause the ratchet-lever L to change the number in the head. As soon as the roller *e* passes off from the incline R a spiral torsion-spring, *f*, returns the shaft N to its former position.

When the device is to be used for interlining no rotation of the heads K is necessary; but they must be held, after proper adjustment, stationary on the bar J.

The cams H are constructed to give the frame I J and the heads K thereon three distinct movements, commencing, for instance, at the point where the impression from the head or heads is taken. As the cylinder formed by the reels F and their attachments continues to rotate, the heads and frame are moved inward for about one-fourth of a revolution of said cylinder, and it is during this part of the movement that the heads are changed for numbering purposes, as above stated. The heads are then gradually moved outward again for another one-fourth of a revolution, and when they are at their farthest out-

ward point the new numbers come in contact with the inking-rollers S, to receive the proper amount of ink.

It will be understood that while receiving ink the heads are at a point farther from the center of the cylinder than when the impression was taken; otherwise the inking-rollers would have to be placed so close to the cylinder that they might come in contact with some other parts and be liable to spoil the work. After the inking is done the heads are again gradually drawn inward for the remaining one-half of the revolution the proper distance, so that when the revolution is completed the heads will be in the right position to make the next impression.

In the above construction it will be noticed that the heads are always on the same radial line of the cylinder; but in many cases it will be necessary to adjust them upon different radial lines, according to the work to be done. In such cases the dovetailed guides *a a* are attached to or formed on arms A′ A′, which are placed loosely upon the shaft D, and the frame I J moves out and in on said guides. The arms A′ are held to the reels F by means of clamp-screws *h*, or by any other suitable or convenient means. It will be noticed in this case that the frame I J can be adjusted to different radial lines and held stationary at any point desired.

For convenience in adjustment, the arms A′ form pointers or indexes *i* at their outer ends, and the reels F are graduated, as shown at *x*.

The rollers *b*, that work in the cams H, are mounted on the outer ends of two sliding bars. B′ B′, the inner ends of which are provided with pins *m m*, projecting downward through slots in the frame and into cam-slots *n n* in a pivoted plate, C′. This plate is provided with a handle or lever, D′, for turning the same, so as to throw the rollers outward to engage with the cams H, or inward, to be free from them. A spring may be arranged to hold the handle or lever D′ in either position, so that the plate will not be turned accidentally either way.

One or more of these devices may be applied on the reels F, as desired, and the invention may be applied to any printing-press, whether one or two impressions are taken for each revolution of the press-cylinder, the object being to do the numbering or the interlining with different colors at the same time, or rather during the same operation, as the printing.

Ordinarily, in numbering, the sheets are first printed and are then taken to a numbering-press, where the numbers are put on by hand in a slow and tedious manner.

In interlining the sheets must be put through the press as many times as there are different colors.

With my invention all the extra handling is done away with, and the numbers or the interlinings are put on while the sheets go through the press without any extra labor and trouble. When leaving the press the sheets slide down the guide-bars into a box or receiver.

The press can be used the same as any ordinary press by throwing the additional mechanism out of gear, so as not to operate, and a fly may then be attached to turn the sheets in the usual manner as they pass out of the press.

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

1. In combination with the wheels or reels and their supporting-shaft, the circumferentially-adjustable arms, the sliding frame, and the numbering or interlining head or heads, substantially as set forth.

2. One or more numbering or interlining heads connected to a radially-sliding frame, arranged in a rotating cylinder and adjustable therein by mechanism, substantially as described, upon different radial lines, in combination with the cylinder of a printing-press, substantially as and for the purposes herein set forth.

3. In combination with a rotating cylinder, one or more numbering or interlining heads, a sliding frame for supporting the same, and circumferentially-adjustable devices by means of which the position of the numbering-heads can be changed, substantially as set forth.

4. The combination of the rotating reels F, sliding frame I J, heads K, with levers L, links *d*, shaft N, having arm M, spring *f*, and crank P, and the incline R, all substantially as and for the purposes herein set forth.

5. The combination, with the shaft D and reels F, of the arms A′, sliding frame I J, and clamping devices *h*, as and for the purposes set forth.

6. The combination, with the shaft D, the wheels or reels F, the cams H, and frame I J, of the sliding or movable bars B′, with rollers *b* and pins *m*, the pivoted plate C′, provided with cam-slots *n*, and the handle or lever D′, substantially as and for the purposes herein set forth.

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Witnesses:
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