

No. 689,437.

Patented Dec. 24, 1901.

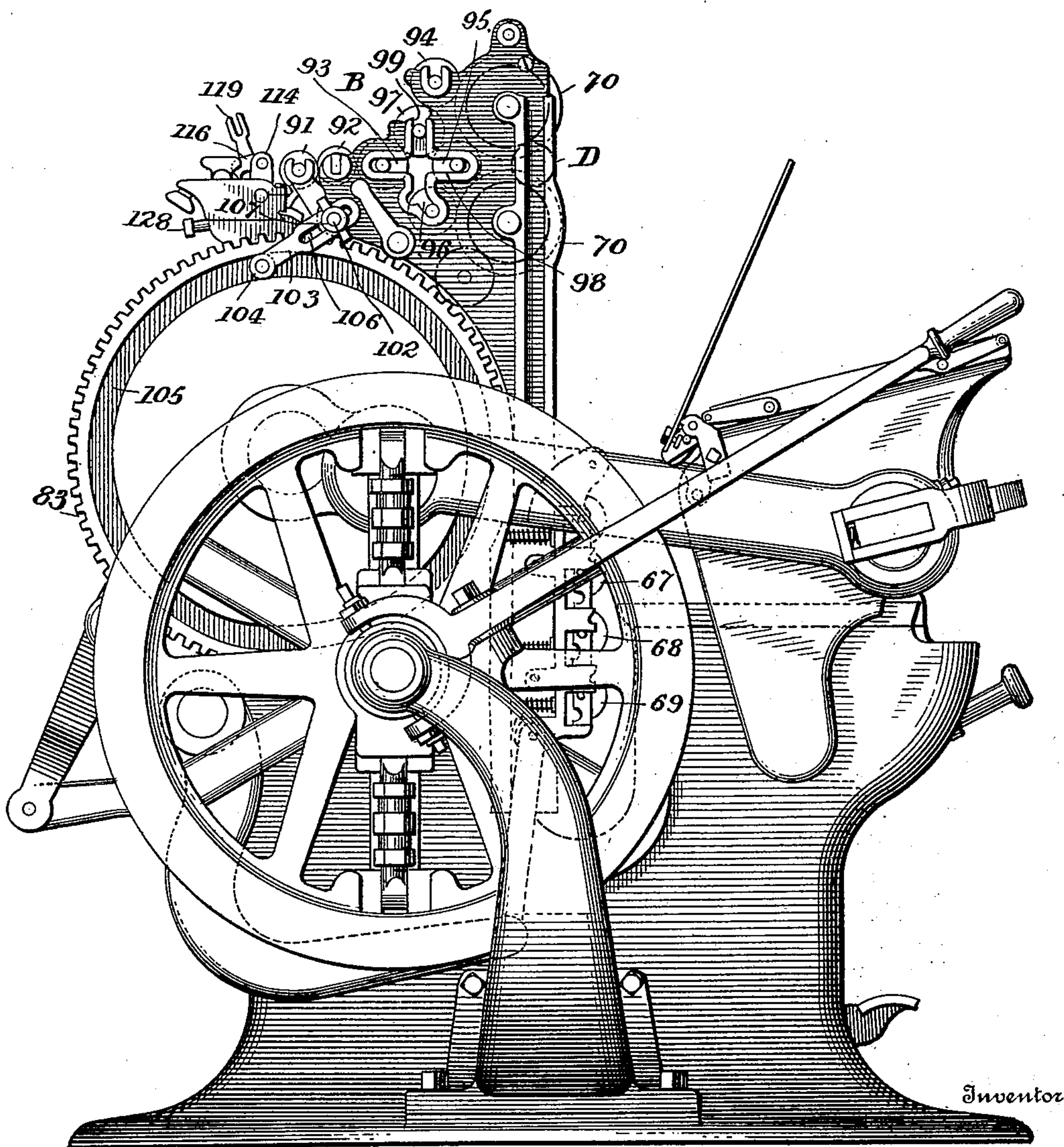
**J. THOMSON.
PRINTING PRESS.**

(Application filed Sept. 4, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



Witnesses

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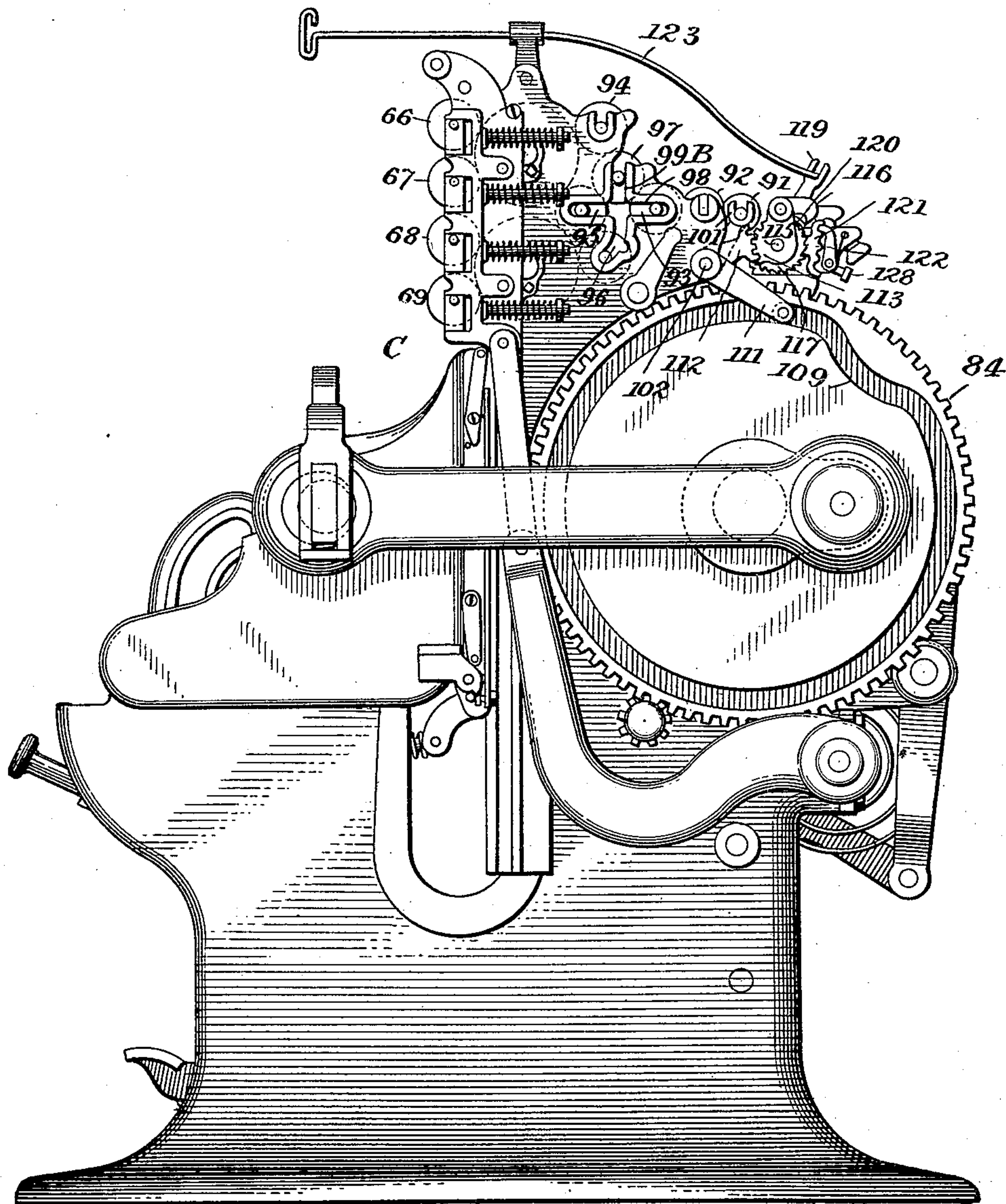
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4 Sheets—Sheet 2.

Fig. 2.



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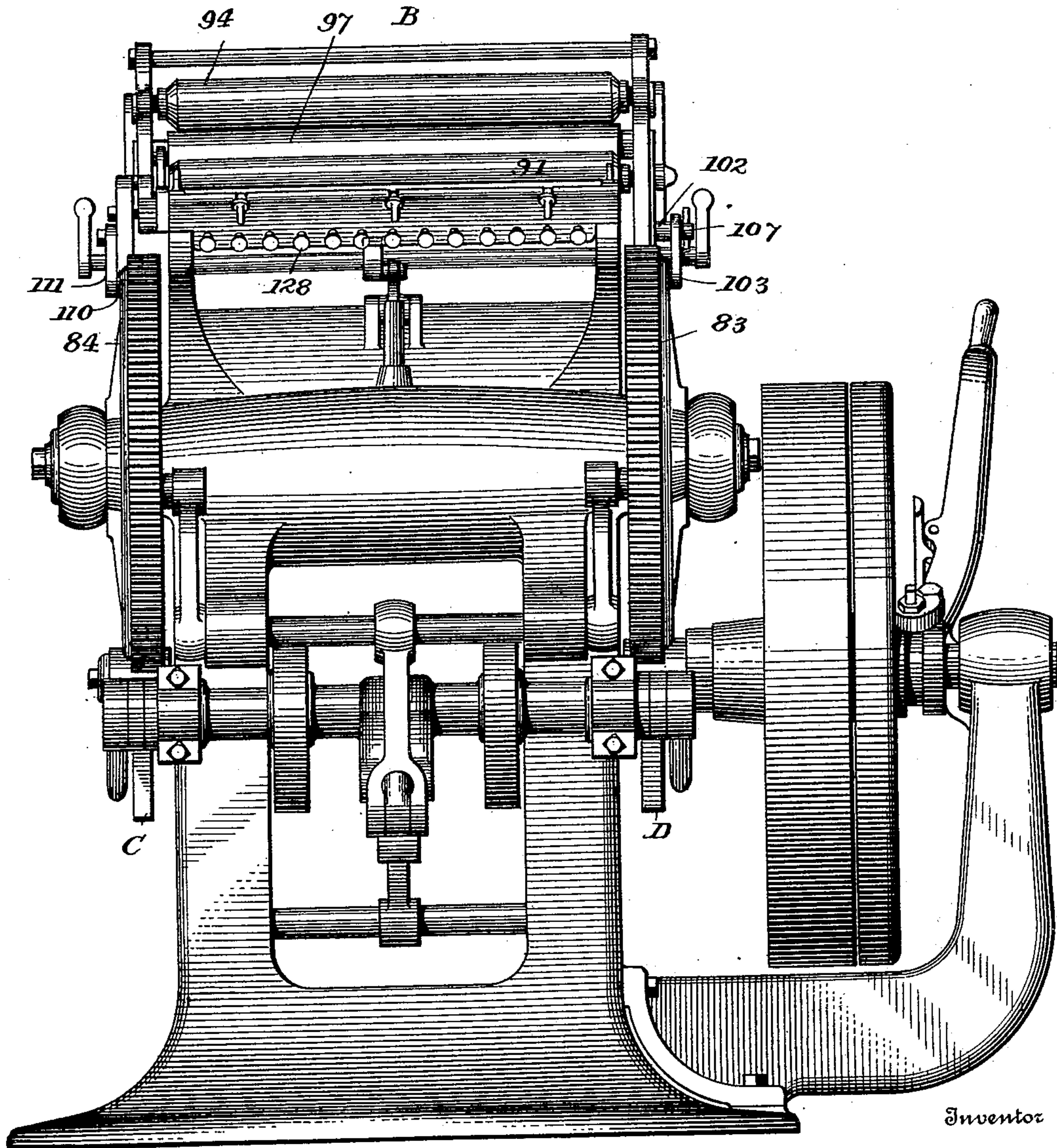
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Fig. 3.



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4 Sheets—Sheet 4.

Fig. 4.

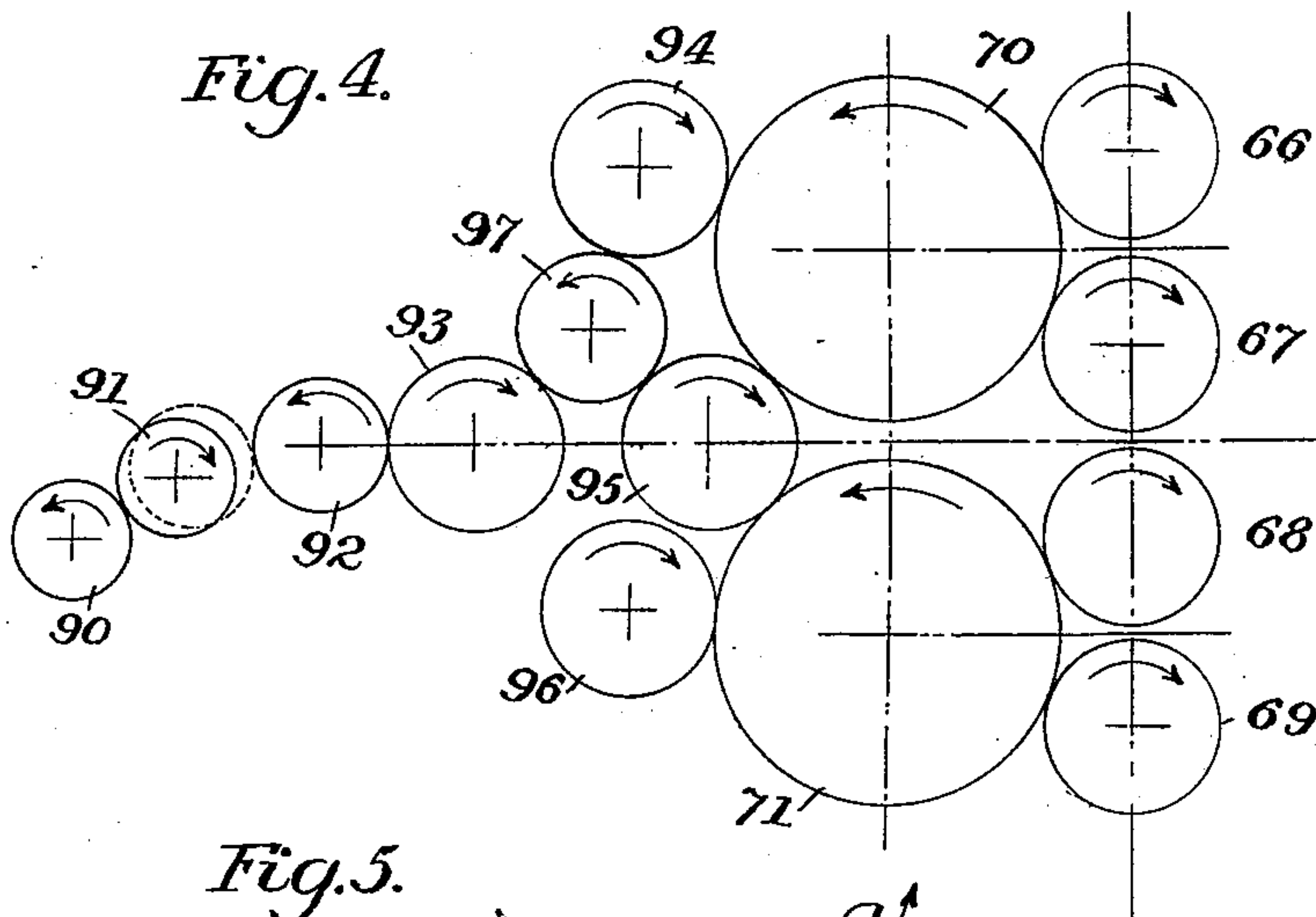


Fig. 5.

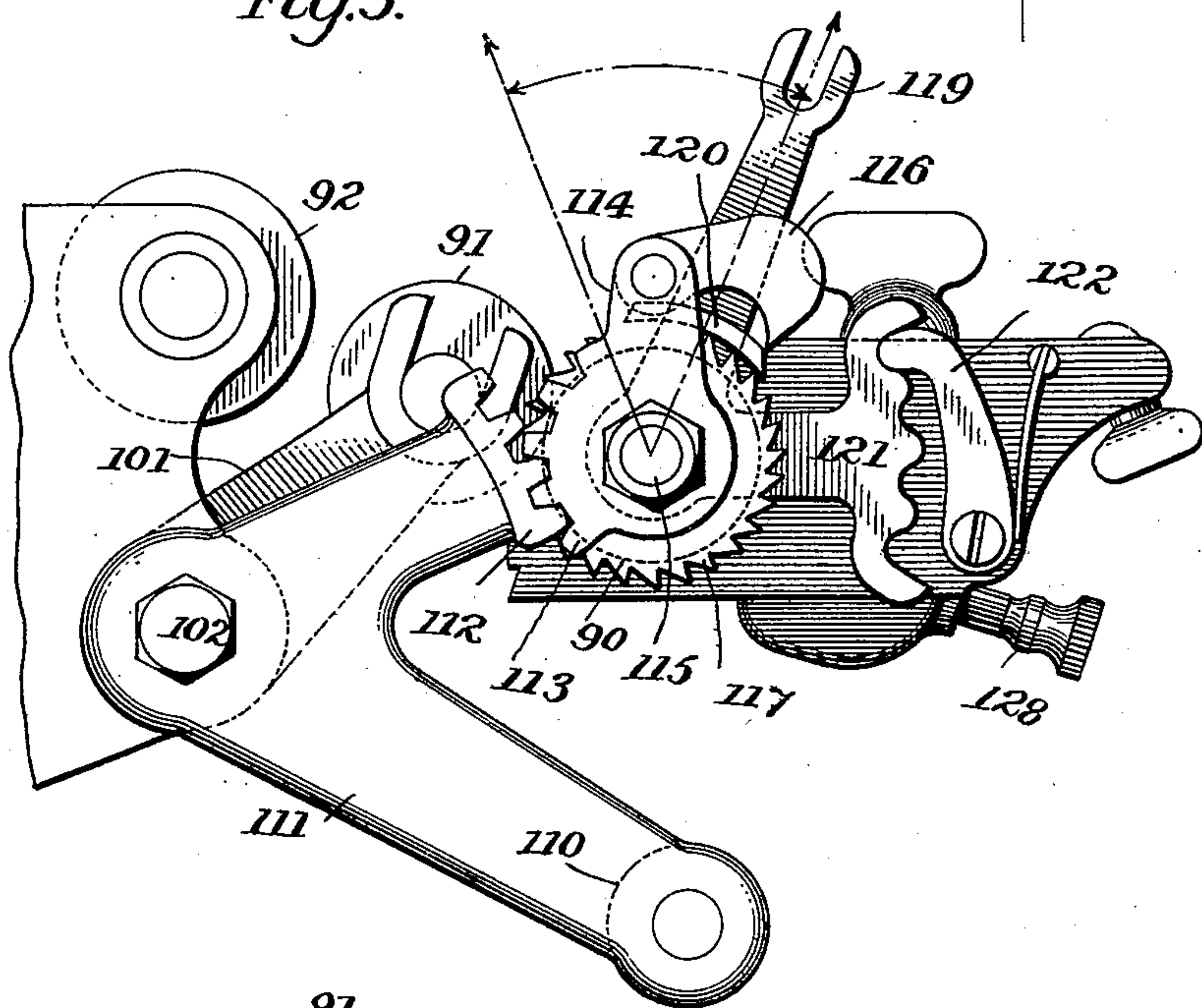
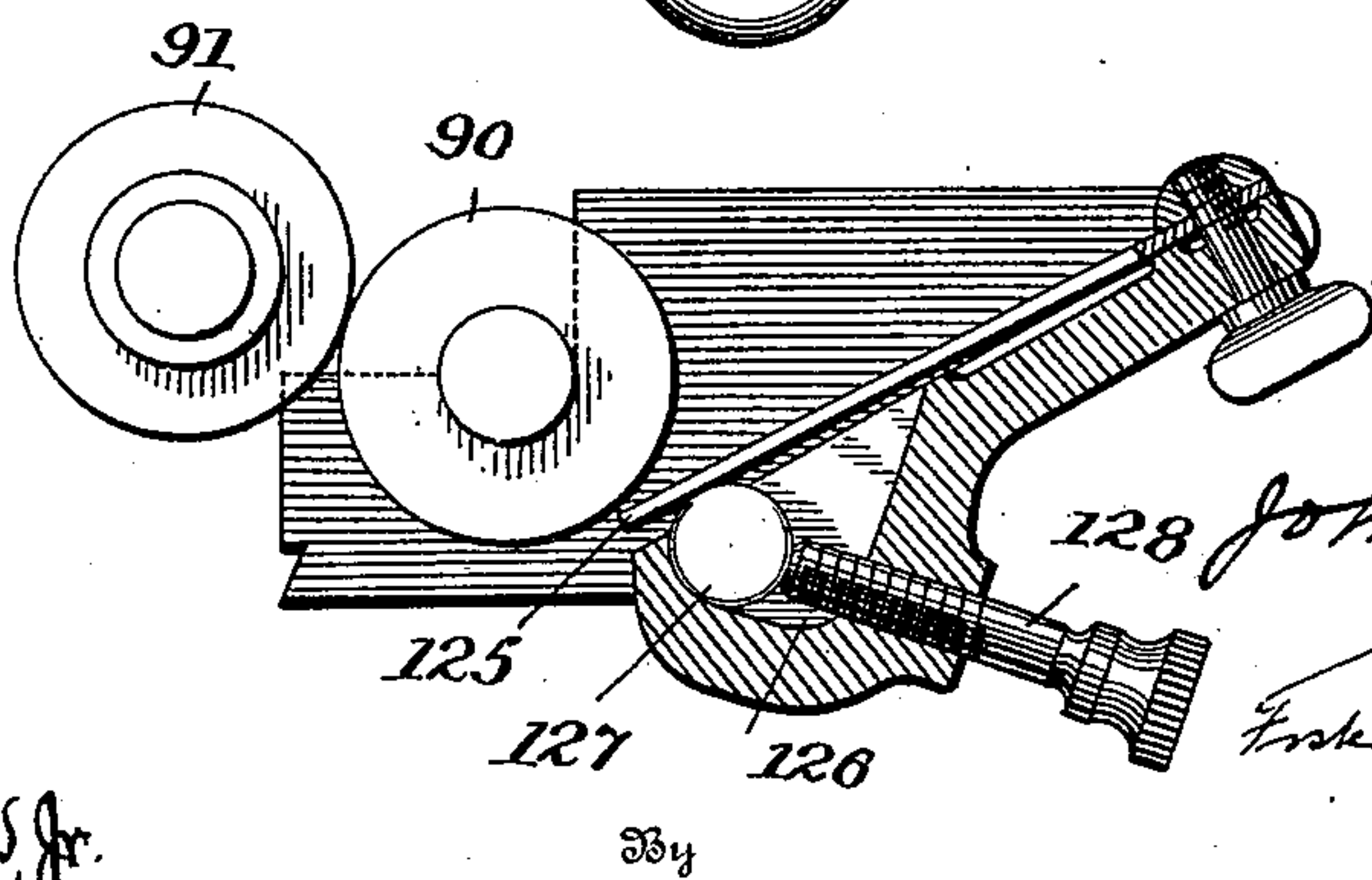


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOHN THOMSON PRESS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 689,437, dated December 24, 1901.

Original application filed June 25, 1901, Serial No. 65,969. Divided and this application filed September 4, 1901. Serial No. 74,310. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention relates to platen printing-presses, and more particularly to the inking mechanism; and the object and nature of the invention will be fully disclosed in the following specification.

This application is a division of an application filed by me June 25, 1901, Serial No. 65,969, which application covers certain improvements in printing-presses, some of which are illustrated herein, but will not be particularly described.

The general characteristics of the style of press to which the present invention is specially applicable are well exemplified in my prior patents, No. 372,993, granted November 8, 1887; No. 427,450, granted May 6, 1890, and No. 428,182, granted May 20, 1890, and in the machines commercially known as the "Colts Armory Press," and it is deemed unnecessary herein to describe in detail the old and common features of the press illustrated herein and shown in my prior patents, except so far as is necessary to point out the improvements constituting the present invention.

In the accompanying drawings, Figure 1 is a left-hand side elevation of a press embodying the invention. Fig. 2 is a right-hand side elevation of the same. Fig. 3 is a rear elevation. Fig. 4 is a diagram of the ink-distributing system. Fig. 5 is an enlarged detail view of the ratchet-lever and the devices for determining the action of the ink-fountain cylinder. Fig. 6 is a cross-sectional view of the ink-fountain.

The carriage, generally designated by B, in which are mounted the form-inking rollers 66, 67, 68, and 69, is carried up and down the carriage-ways, as C D, across the form and caused to dwell upon the main inking-cylinders 70 and 71 by mechanism fully described in my application above referred to and which need not be described herein, as it forms no part of my present invention.

The ink-distributing system is designed to supply ink from the least to the greatest degree, covering every requirement of modern practice, with the utmost economy and convenience to the operator. In Figs. 1 and 2 and in the diagram Fig. 4 the distributing system is exemplified at its maximum efficiency, the object being to transfer a band of ink received from an intermittently-actuated ink-fountain cylinder to the main ink-cylinders and thence to the form-inking rollers of the carriage in a perfectly uniform film free from inequalities or streaks; but as such an extent of distribution as is here illustrated is not required in all sizes and kinds of forms it is desirable to be able to quickly adapt the character or amplitude of the distribution to the work in hand.

Referring more particularly to the diagram Fig. 4, 90 is a metal ink-fountain cylinder; 91, a composition ductor-roller; 92, a metal "changer;" 93 94 95 96, composition rollers, and 97 is a metallic riding-roller. Thus the main ink-cylinders 70 71 primarily drive the composition rollers 94 95 96 by ink friction. The metal roller 97 "rides" on the composition rollers 93 and 95 and drives the former, as 93, which in turn actuates the changer 92 and the ductor-roller 91. The composition roller 94 makes contact both upon the main ink-cylinder 70 and the riding-roller 97. Hence in the combination shown the said riding-roller 97 is driven by the two composition rollers 94 and 95. It is to be observed that the composition rollers 93 and 95 operate in horizontal slots 98, Figs. 1 and 2, the center of which is disposed midway between the two main ink-cylinders 70 71, while the composition roller 96 and the metal riding-roller 97 operate in the slot 99, which is disposed at approximately a right angle to and intersects the horizontal slots 98. The consequence of this arrangement is that the metallic riding-roller 97 acts by gravity to automatically thrust each of the composition rollers 93 and 95 into proper contact with the changer 92 and the cylinders 70 71, respectively, so that no other adjustment is requisite to make up for shrinking of the composition. The said riding-roller 97 also per-

forms the important function of driving the rollers 93 and 91 and the interposed changer 92. By inspecting the arrows indicating the direction of revolution of the several rollers in Fig. 4 it will be clear that it is impossible for the charge of fresh ink received from the ink-fountain cylinder 90 to be transmitted to the main ink-cylinder 70 or 71 without passing in various degrees of subdivision all of the several rollers. Moreover, by placing the changer 92 in the location shown, so as to receive the charge of fresh ink from the ductor-roller 91, the latter is thus directly acted upon by lateral distribution, the advantage of which is obvious to those skilled in the art.

By the construction above described the following lesser combinations of the form-rollers and distributing-rollers may be obtained, viz: First, the composition rollers 94 and 96 may be dispensed with; second, if the supply of the fountain is not required (as in short runs) the additional composition roller 93, the changer 92, and the ductor-roller 91 may be dispensed with; so, also, may from one to three of the form-inking rollers 66 67 68 69 be dispensed with; third, the press is operative with but one or two of the lower form-inking rollers 69 68 and the single distributing composition roller 96; fourth, so, too, the press is operative with either one or two upper form-inking rollers 66 67 and the single distributing composition roller 94; fifth, having first removed the rollers 95 and 97 the two upper form-inking rollers 66 67 and the distributing-roller 94 may be operated with one color of ink on one half of the length of the upper main ink-cylinder 70 and the two lower form-inking rollers 68 69 and the distributing composition roller 96 may be operated with another color of ink upon the other half of the length of the lower main ink-cylinder 71, in which instance the length of the composition on the several rollers mentioned may be but half of their usual length, the ink being supplied manually instead of by the fountain, and, sixth, either of the main ink-cylinders 70 71 may be removed without seriously interfering with the operation of the distributing system. It will thus be seen that with the construction shown and described by means of the intersecting vertical and horizontal slots supporting the rollers, so that by the action of gravity upon the roller in the vertical slots the composition rollers are thrust away from each other in a horizontal direction and into contact, respectively, to the right and to the left, one with the cylinder and the other with the changer, a complete and satisfactory ink-distributing system is provided which is capable of meeting the requirements of practical operation.

The ductor-roller 91 is freely mounted on the vibrator-frame 101, Figs. 1 and 2, which is pivoted at 102 in the carriage-ways. The desirable conditions for the operation of the ductor-roller are that it shall be held in contact with the ink-fountain cylinder 90 while

the latter is being rotated and immediately this is accomplished shall be swung over and maintained in contact with the changer 92 for the longest period of time possible, as this will insure the most thorough distribution of the fresh charge of ink received from the ink-fountain. These conditions are obtained by means of the lever 103, Fig. 1, one end of which is connected to the vibrator-frame 101 and the other end of which has a friction-roller 104, operated by a cam 105, formed in the outer face of the left-hand main gear-wheel. As the extent of the vibration required is comparatively slight, in practice usually not exceeding one-fourth to three-eighths of an inch, this makes it possible to vibrate the ductor-roller 91 rapidly, and yet without producing an objectionable shock or wear of the parts. To provide for shrinkage, the arm 103 is provided with a slot, as 106, which embraces a boss on the end of the vibrator-frame 101, being made fast thereto in any suitable manner, as by a clamp-nut 107. By this construction the effective radius of the lever 103 may be directly increased or decreased to obtain the desired degree of intimacy of contact of the ductor-roller 91 upon the changer 92 and the ink-fountain cylinder 90 without the intervention of additional apparatus. The desired conditions of operation of the ink-fountain cylinder are that it may rotate smoothly through a relatively long arc, so that the film of ink flowing past the ink-blade may be cut down very thin, thus transmitting a thin but wide band of color to the ductor-roller. Such a band of ink is much more quickly and effectively "cut up" and distributed than when the ink is fed in a narrow and thick band. These conditions are obtained to the limit of practicability by forming cams, as 105, Fig. 1, and 109, Fig. 2, in the outside face of each of the main gear-wheels 83 84, which in the instance of the cam 109 by a suitable connection, as the friction-roller 110, vibrates a bell-crank lever 111, mounted to operate freely upon the same center 102 as the vibrator-frame 101, but independent thereof. Formed upon this lever 111 is a segment, as 112, containing gear-teeth (see Fig. 5) which operate in a corresponding gear-segment 113, formed in the ratchet-lever 114, freely mounted upon a journal 115 on the end of the ink-fountain cylinder 90. This ratchet-lever carries a pawl 116, which engages a ratchet-wheel 117, made fast to the ink-fountain cylinder 90. It will now be apparent from an inspection of the cams 109, formed in the outside faces of the gear-wheels, that any desired amplitude of motion of the levers right and left can be obtained without objectionable shock and that they may so cooperate relatively as to obtain the longest possible period of time for the ductor-roller 91 to perform effective work. It is to be observed that the bell-crank lever 111 is not susceptible of adjustment, its throw being constant. In usual practice heretofore such adjustments

are provided that the throw of the pawl may be changed to engage one, two, or more teeth of the ratchet-wheel 117, hence correspondingly increasing or decreasing the extent of the rotation of the ink-fountain cylinder and the width of the band of ink fed to the ductor-roller. In the present instance this result is accomplished without interposing adjustments in the motive mechanism by means of a shield 120, Fig. 5, freely mounted on the same journal 115 as the ratchet-lever 114 and so arranged that by setting the shield 120 to different predetermined positions, as by an index-plate 121 and latch 122, the pawl 116 is permitted to engage one or more of the teeth of the ratchet-wheel 117, its total amplitude of motion, however, being constant. By applying a suitable connection to the shield 120—as, say, the rod 123 and arm 119—a most convenient means is afforded to the operator, whereby he can increase or decrease the supply of ink to the form-inking rollers without leaving his position in front of the press.

An improved means for effecting the adjustment of the ink-blade in respect to the ink-fountain cylinder is shown more clearly in Fig. 6, and this consists in forming a series of channels, as 126, below the ink-blade 125 in the main body of the ink-fountain. In each of these channels is freely placed a short cylindrical piece of metal, as 127. The incline of these channels 126 with respect to the incline of the ink-blade 125 and the diameter of the cylindrical piece 127 may be such that the motion imparted to the latter when thrust forward, as by a thumb-piece 128, will produce an elevation of the blade of less extent than the pitch of the thumb-screw. Moreover, by means of this simple interposition of the cylindrical pieces 127 a wide area of contact is obtained upon the blade, lessening the liability of “kinking” it, and yet providing a most elastic and perfect means of adjustment of the blade with relation to the ink-fountain.

Having thus described my invention and pointed out the preferred embodiment thereof, without limiting myself to the precise details of construction and arrangement, what I claim is—

1. The combination in a platen printing-press having a main ink-distributing cylinder or cylinders and a form-inking carriage, of carriage-ways, provided with intersecting vertical and horizontal slots forming bearings for ink-distributing rollers, and ink-rollers mounted therein in such manner that the action of gravity upon the roller in the vertical slots acts to thrust the two rollers in the horizontal slots, upon which it makes contact, to the right hand and to the left respectively, as set forth.

2. The combination with a press and with a carriage-way, of main ink-cylinders, a changer, composition rollers between the

changer and main ink-cylinders, and a riding-roller, the parts being constructed and arranged so that the riding-roller acts by gravity to thrust the composition rollers away from each other and into contact respectively with the main ink-cylinders and changer, substantially as described.

3. The combination with the main ink-cylinders, of distributing composition rollers as 93 and 95 mounted in horizontal slots in the carriage-ways, a riding-roller 97 mounted in vertical slots in the carriage-ways, an ink-fountain, a ductor-roller, and a changer interposed between the ductor-roller and the distributing composition rollers, the latter being thrust into lateral contact with the changer and with the main ink-cylinders, right and left, by the downward thrust of the riding-roller, substantially as described.

4. In a platen printing-press, the combination with a main driving-gear, an ink-fountain, a vibrator-frame, a ductor-roller, and a changer or metal cylinder, of an arm as 103 the projecting end, 104, of which is adapted to be operated by a cam, as 105, formed in the face of the main gear, the other end being slotted and attached by a clamp, as 102, to a journal of the vibrator-frame, whereby the arm may be slid back and forth upon the vibrator-frame and also in the cam to increase or decrease the throw of the ductor-roller, substantially as described.

5. The combination with an ink-fountain having channels, an ink-fountain cylinder mounted therein, and an ink-blade, of cylindrical pieces resting in the channels, and means for adjusting their positions therein and adjusting the blade, substantially as described.

6. The combination with an ink-fountain having channels, an ink-fountain cylinder mounted therein, and an ink-blade, of cylindrical pieces resting in the channels, and screws mounted in the ink-fountain and adapted to adjust the cylindrical pieces resting in the channels, substantially as described.

7. In a platen printing-press, having right and left main driving-gears, the combination therewith of an ink-fountain whose cylinder is intermittently rotated by a bell-crank lever actuated by a cam formed in the outer face of one of the said main gears, and a vibrator-frame carrying the ductor-roller whose vibration is produced by an arm, adjustable upon the vibrator-frame, actuated by a cam formed in the outer face of the other of said gears, substantially as specified.

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

JOHN THOMSON.

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