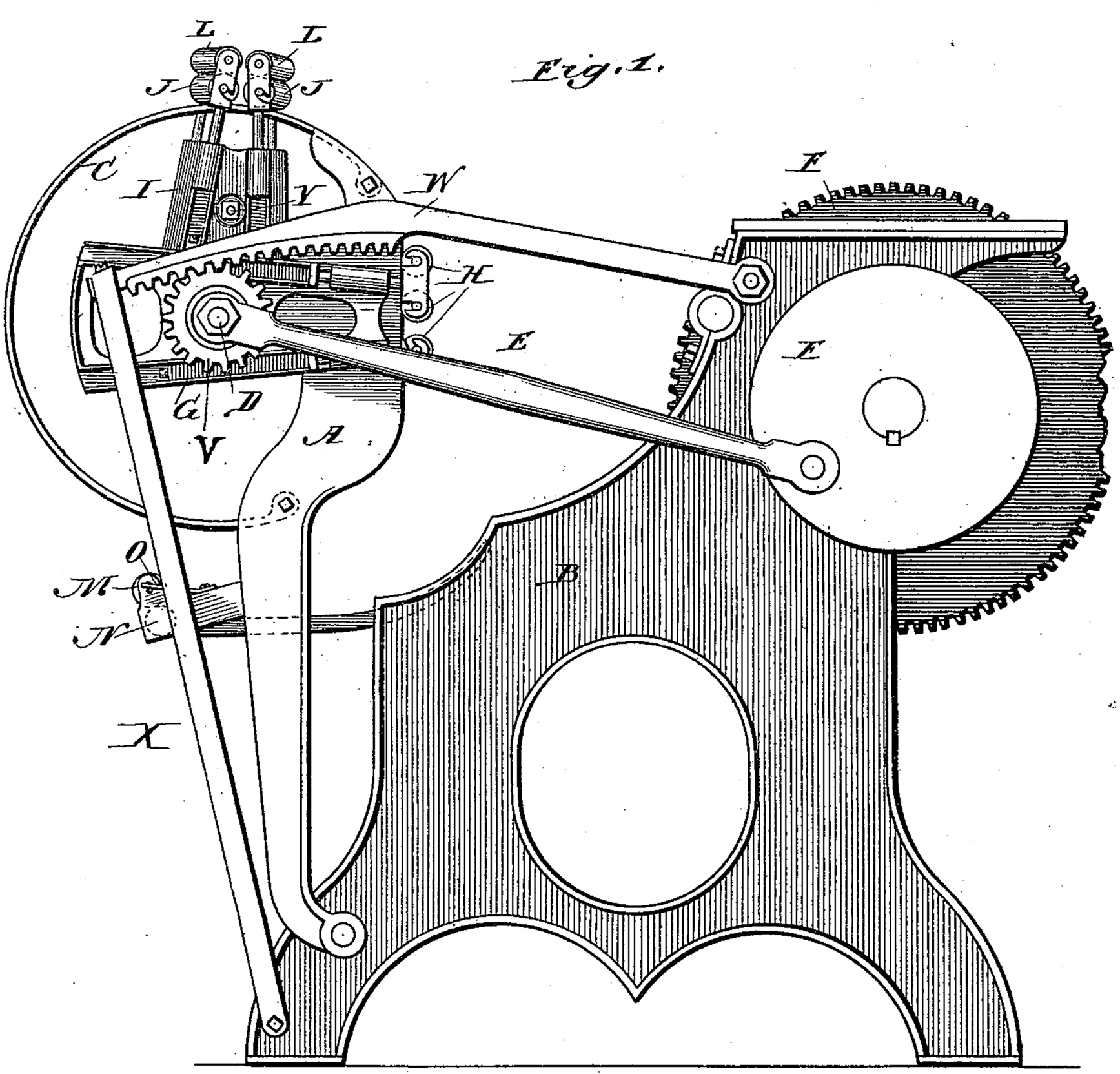
(No Model.) 2 Sheets—Sheet 1.

H. F. BECHMAN.

INKING DEVICE FOR PRINTING PRESSES.

No. 447,021. Patented Feb. 24, 1891.

Fig. 1.



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Will R. Cruchundro

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

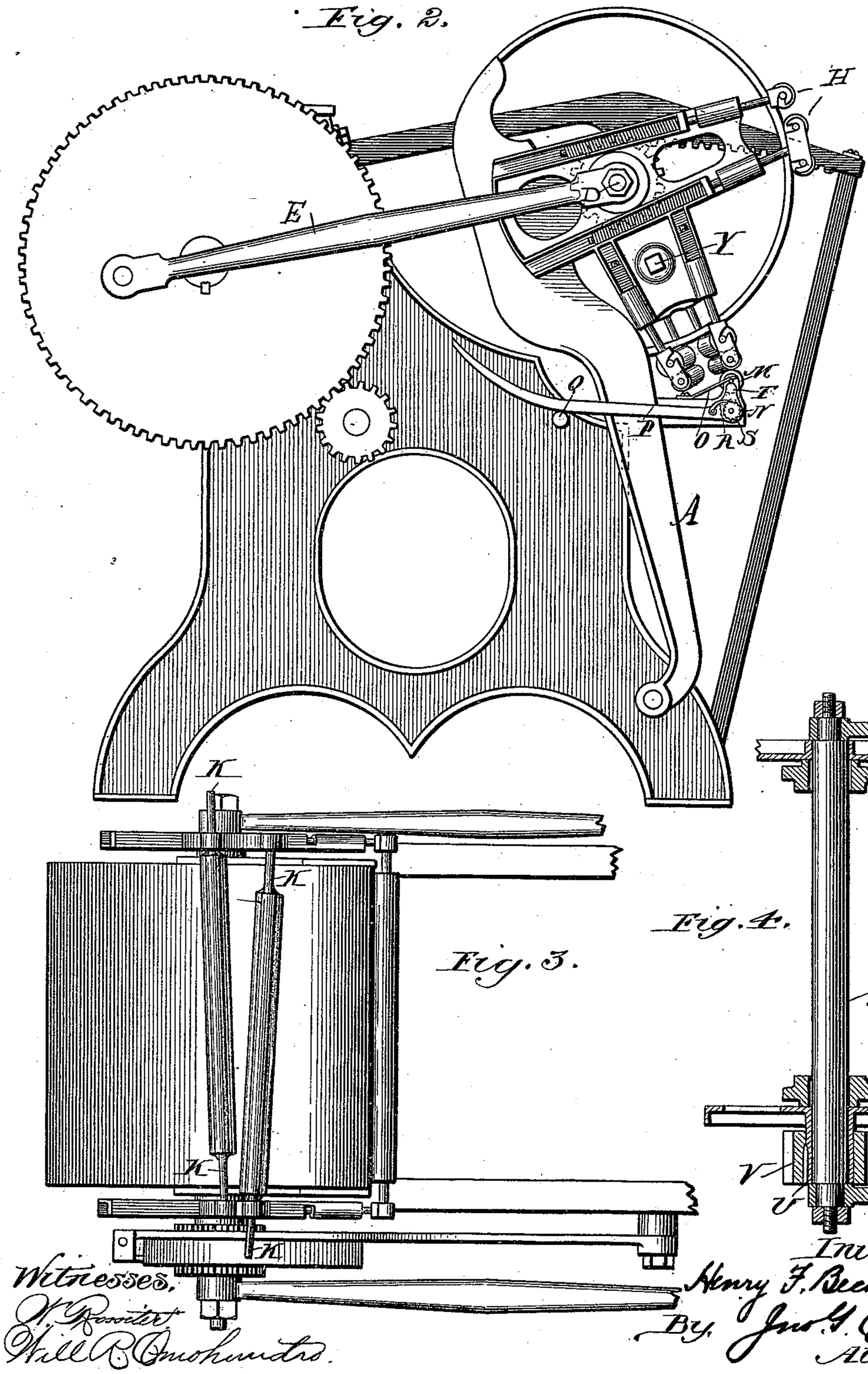

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

HENRY F. BECHMAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE SCHNIEDEWEND & LEE COMPANY, OF SAME PLACE.

INKING DEVICE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 447,021, dated February 24, 1891.

Application filed February 1, 1887. Serial No. 226,115. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. BECHMAN, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Inking Devices for Printing-Presses, of which the following is a specification.

This invention relates to improvements in inking devices for printing-presses, particularly job-presses, in which the vibrations of the rocking frame or back legs carrying the chase and type-form are utilized for actuating the oscillating frame carrying the type-inking rollers.

The prime object of this invention is to have the type-inking rollers carried by oscillating frames or supports journaled upon the back legs and working upon an inking-plate also secured to the back legs, having a curved surface substantially concentric with the axis of the oscillating frames, whereby said rollers not only have a backward and forward travel upon the inking-plate between each contact with the type, but by reason of their circular line of travel are not subjected to undue and unequal pressure in traveling backward and forward upon the inking-plate, thereby greatly promoting the evenness of the distribution of the ink both upon the plate and the type.

Another object is to combine with such oscillating frames and inking-plate a supplemental frame rigidly secured to and operated by the oscillating frame and carrying distributing-rollers for transferring ink from the ink-well and distributing it upon the inking-plate in the path of travel of the type-inking rollers, whereby the latter take up a uniform coating of ink previously distributed and by their own travel upon the inking-plate render the distribution of the ink thereon still more effective.

Other objects are to promote the effectiveness of the distributing-rollers of such a printing-press by giving the rollers an endwise or lateral movement during their travel to and fro upon the curved inking-plate, to provide means for imparting to the oscillating and supplemental frames a unitary vibration upon the axis of the frame, and to provide certain details of construction in the carrying out of my invention, all as illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a press-frame, showing an inking device attached thereto embodying my invention; Fig. 2, a similar view of the opposite side of the machine; Fig. 3, a detail plan view thereof, and Fig. 4 a detail horizontal section through the shaft carrying the oscillating frame.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the usual back legs or rocking frame of a printing-press, pivoted at the lower end thereof to the main frame B in the usual manner, to which rocking-frame at the top part thereof is secured an inking-plate C, bent on the arc of a circle and attached at each end, respectively, by means of bolts or otherwise. This plate, as before stated, is struck on the arc of a circle and upon an axis common with that of the cross-shaft D, usually journaled in the back legs, to which a vibrating movement is imparted and thereby communicated to the back legs through the medium of pitmen or connecting-rods E, pivoted, respectively, to said shaft and to wheels F F, mounted in the frame B of the press. The plate C consequently projects rearwardly from the back legs or to the opposite side thereof, to which the chase and type-form are secured.

Loosely journaled on the shaft D is the usual oscillating frame G, carrying upon one end thereof the type-inking rollers H, which are attached thereto in the same manner as ordinarily obtains — that is, by spring-rods which hold the rollers at all times yieldingly in contact with the type and inking-plate. Cast with or otherwise rigidly secured to said oscillating frame and projecting at substantially right angles thereto is a supplemental frame I, also carrying rollers J, secured thereto in substantially the same manner as the type-inking rollers, this supplemental frame, as well as the oscillating frame or support, being duplicated on the opposite side of the machine, so as to furnish bearings at each

side for all the rollers. These rollers J extend transversely across the inking-plate C, and are designed solely as distributing-rollers, to further which end the bearings thereof carried by the supplemental frame at each side of the machine are set at an oblique angle to their line of travel and to each other, so that the rollers extend obliquely across the inking-plate, with the spindles K thereof elongated and working freely through their bearings in such manner that during the travel of the rollers to and fro upon the inking-plate they will have a lateral or endwise as well as rotary movement, one toward the right and the other toward the left of the inking-plate, induced solely by the frictional contact of said rollers with the plate. Although the distributing effect of these rollers, if journaled at right angles to their line of movement, would be greater than is possible to attain in any of the prior constructions, it is materially aided by this lateral or endwise movement in distributing or equalizing the coating of ink over the surface of the inking-plate, to further which end a second pair of rollers L are provided, of less diameter than the rollers J and mounted directly over them in any extension of their bearings, by which the ink is taken from the transfer-roller M of the ink-well. This ink-well, though of substantially the same construction as that upon which Letters Patent of the United States, No. 345,760, was granted me is somewhat different in its operation and location, the transfer-roller M being above instead of below the ink-well roller N, while the gravity of the latter acts in conjunction with the spring O to throw it into contact with the ink-well roller. In this case also the ink-well, instead of being stationary, as in my said patent, has a bodily travel back and forth by reason of its attachment to the back legs, the cam-lever P being curved upwardly at its outer end and engaging and riding upon a pin or projection Q, secured to the frame B, so as to obtain its vibratory motion relative to the ink-well, thereby imparting a partial rotation to the well-roller N by reason of the engagement of a pawl R, secured thereto, with a ratchet-wheel S, mounted upon the spindle of said roller, upon which the cam-lever is loosely journaled, at the same time elevating the transfer-roller M clear of the well-roller and partially into the path of the rollers L L by means of a cam projection T on said lever engaging the projecting end of the spindle of said roller at each and every vibration of the back legs. For the purpose of actuating the oscillating and supplemental frames, I have mounted rigidly upon the elongated hub U of one of the oscillating frames a small cog-wheel V, the teeth of which engage a segmental rack W, secured to the frame B, the outer end of which rack is held rigid by a brace X, also secured to the frame B, thus giving to the rack a triangular base-support. The oscillating frame, being loosely journaled upon the cross-shaft D, is caused to oscillate during the vibrations of the back legs by reason of the engagement of this cog-wheel V with the stationary rack, which of course is struck on the arc of a circle having a common axis with the pivot of the back legs, the two castings or frames which I have designated the "oscillating frames," being connected together and oscillating in unison by means of the tie-rod Y, extending between the supplemental frame acting in conjunction with the supporting cross-shaft.

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

1. The combination, with the back legs, the inking-plate, the oscillating frames, the supplemental frames rigidly secured to and projecting at an angle from said oscillating frames, and the inking and distributing rollers journaled in said frames, respectively, of the fixed rack, the cross-shaft, the gear mounted thereon and meshing with said rack, and the pitman supported by said cross-shaft, substantially as described.

2. In an inking device for printing-presses, the main frame, the back legs, an inking-plate having a curved flat surface secured to said back legs, the oscillating frame, and distributing-roller mounted in said frame, in combination with the ink-well secured to said back legs, the well-roller, the movable transfer-roller, a cam-lever for actuating said transfer-roller, and a pin or projection on the main frame engaging and actuating said lever, substantially as described.

3. In an inking device for printing-presses, the main frame, the back legs, an inking-plate having a curved flat surface secured to said back legs, the oscillating frame and distributing-roller mounted in said frame, in combination with the ink-well secured to said back legs, the well-roller, the movable transfer-roller, a ratchet-wheel mounted on the spindle of the well-roller, a cam-lever having a pawl pivoted thereto for simultaneously actuating the well and transfer rollers, and a pin or projection on the main frame for engaging and actuating said lever, substantially as described.

4. In an inking device for printing-presses, the main frame, the back legs, the cross-shaft thereof, an inking-plate secured to the back legs, the surface of which is concentric to the axis of said shaft, the oscillating frame loosely journaled on said shaft carrying type-inking rollers, and the supplemental frame carrying distributing-rollers, in combination with a stationary segmental rack secured to the oscillating frame engaging and actuated by said rack during the vibrations of the back legs, substantially as described.

5. In an inking device for printing-presses, the combination, with the vibrating back legs, the oscillating frames pivoted thereon and carried thereby, type-inking rollers mounted on said frames, and means for oscillating said frames, of a curved inking-plate secured to

and carried by said back legs, the surface of which is concentric to the axis of the oscillating frames and in the path of travel of said rollers, substantially as described.

6. In an inking device for printing-presses, the combination, with the vibrating back legs, the oscillating frames pivoted thereon and carried thereby, supplemental frames rigidly secured to and projecting at an angle from said oscillating frames, type inking and distributing rollers journaled in said frames, respectively, of an inking-plate secured to and carried by the back legs, the surface of which is concentric to the axis of the oscillating frame and in the path of travel of all of said rollers, substantially as described.

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