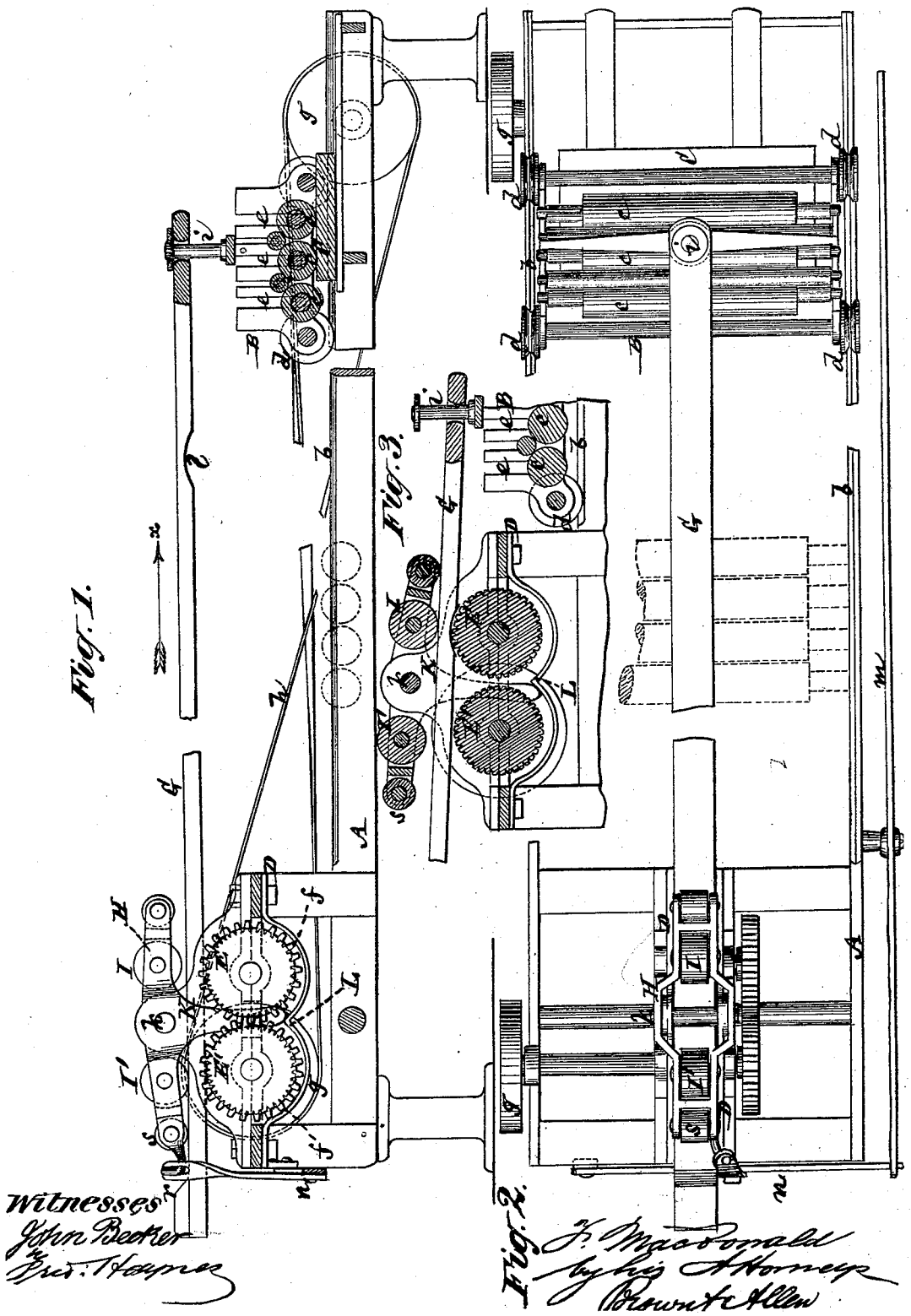
F. MACDONALD.

INKING APPARATUS FOR PRINTING PRESSES.

No. 188,386. Patented March 13, 1877.



Witnesses
John Becker
Jno. Hoyne

F. Macdonald
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

FRANKLIN MACDONALD, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF OF HIS RIGHT TO ISAAC SMITH, OF SAME PLACE.

IMPROVEMENT IN INKING APPARATUS FOR PRINTING-PRESSES.

Specification forming part of Letters Patent No. **188,386**, dated March 13, 1877; application filed December 8, 1876.

To all whom it may concern:

Be it known that I, FRANKLIN MACDONALD, of the city, county, and State of New York, have invented certain new and useful Improvements in Inking Apparatus for Printing Presses; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification:

This invention consists in certain novel constructions, and combinations of means for automatically operating the reciprocating carriage of inking-rollers in lithographic and other printing-presses, whereby the working of the press is expedited and rendered less laborious, and the inking of the stone or other printing-surface is performed with the most perfect accuracy and efficiency.

Figure 1 represents a partly sectional side view of a lithographic printing-press, in part, with my improved means for operating the carriage of inking-rollers in position for running said rollers over the stone, and as in the act of their passing over the latter in a forward direction, as indicated by the arrow *x*. Fig. 2 is a plan of the same, under a like condition of parts; and Fig. 3 a vertical central longitudinal section, in part, showing the means for operating said carriage of inking-rollers as reversed and as fully run back.

A is the frame of the press formed with rails *b b*, on which the carriage B of inking-rollers *c c* reciprocates, and on which said carriage is supported by wheels *d d*. This carriage B is pushed in the direction indicated by the arrow *x* over the full length of the stone C, to be inked after said stone has been suitably dampened, which dampening may either be done by hand or by suitable dampening appliances attached to the carriage B, and arranged in front of the inking-rollers. The carriage B of inking-rollers is then returned or drawn back by the pole G, the sheet to be printed laid upon the stone C, and the latter run under the printing or impression-bar, roller, or other impression device, after which the stone is returned to its normal position to be again dampened and inked after the printed sheet has been removed. The inking-rollers *c c* are supported in slotted bearings *e e*, whereby they are free to rise on to the stone when inking the latter, and are caused in the backward portion of the travel of the carriage to drop and come in contact with suitable ink-distributing rollers, the rails *b b* being extended far enough back to allow the carriage of inking-rollers to completely clear the stone.

The carriage B is intermittently reciprocated to operate, as hereinbefore described, as follows: Mounted on the main frame A, at or near the back of the machine is a supplementary frame, D, which carries the tripping and reversing devices of the inking-roller carriage B. These devices consist in part of fluted or roughened reversing-rollers E E′, geared together by spur-wheels *f f*, which, although here shown of the same diameter, may be of different diameters, to give the inking-roller carriage a quicker back than forward movement. These rollers, either one of which may be driven by pulleys *g g*, and a band, *h*, are caused to alternately bite under or against a push-and-draw bar or pole, G, connected in a free upwardly and downwardly working manner at its forward end by a pin, *i*, with the inking-roller carriage B. Pivoted to the frame D, at *k*, is a rocking yoke or frame, H, which carries pressure-rollers I I′. These rollers may either be plain or roughened, and are arranged at a greater distance apart on either side of a common center than the rollers E E′, and are disposed on the upper side of the bar or pole G, which is arranged loosely between the rollers E E′ and I I′. Attached to or forming part of the rocking yoke or frame H are one or more downwardly projecting arms or toes, K, which, accordingly as the rocking yoke H is tipped on its fulcrum *k*, are thrown to one side or other of a retaining-spring, L, which serves to hold either pressure-roller I or I′ in contact with the bar or pole G, that may be plain, toothed, or roughened to engage with the rollers E I or E′ I′. Said bar or pole G is cut away at *l*, so that when run back to its extreme limit, as shown in Fig. 3, the operating roller E ceases to act upon said bar or pole, and causes the action of the latter to be suspended till it is required to run the car-

riage B of inking-rollers forward and backward again over the stone C. To move said carriage B in a forward direction over the stone, the yoke H is tipped—as, for instance, by levers *m n*, operated by hand—to cause the pressure-roller I′ to bear down on the pole G back of the fulcrum *k*, to relieve the pole from contact with the rollers E I, and to put it in contact with the rollers E′ I′. After the carriage B of inking-rollers has been thus run forward over the stone, a tripping-button, *r*, on the back end of the bar or pole G, strikes a stop or roller, *s*, on the rear end of the yoke H, and tips or tilts it in a reverse direction, to bring the bar or pole G down on the reversing rotating feed-roller E, and the pressure-roller I down on the top of said pole. The carriage B of inking-rollers is then run back till the reduction *l* in the bar comes over the reversing-roller E. The rocking yoke H, with its attached pressure-rollers I I′, forms a tripping device of the bar or pole G. In this way, or by these means, the carriage of inking-rollers is automatically operated, tripped, and reversed to ink the stone or other printing-surface as required.

I claim—

1. The combination of the oppositely rotating and reversing rollers E E′, the pressure-rollers I I′, controlled by a tripping device to operate alternately and in proper relation respectively with the reversing-rollers E E′, the push-and-draw bar or pole G, and the inking-roller carriage B, essentially as described.

2. The push-and-draw bar or pole G, constructed with a recess, *l*, in combination with the reversing-roller E, substantially as and for the purpose specified.

3. The push-and-draw bar or pole G, provided with a tripping-button, *r*, in combination with the stop or roller *s* on the rocking tripping device H, which carries the pressure-rollers I I′, substantially as specified.

4. The rocking tripping device H, constructed of a yoke arranged to work on a pivot, *k*, and having pressure-rollers I I′ on opposite sides of said pivot, also provided with one or more locking arms or toes, K, and one or more retaining-springs, L, for operation in relation with the reversing-rollers E E′, and push bar or pole G, essentially as described.

FRANKLIN MACDONALD.

Witnesses:

E. B. SPERRY,

FRED. HAYNES.