

JAMES M. CONNOR.

Improvement in Machines for Ornamenting Printers Rules.

No. 115,934.

Patented June 13, 1871.

Fig: 1.

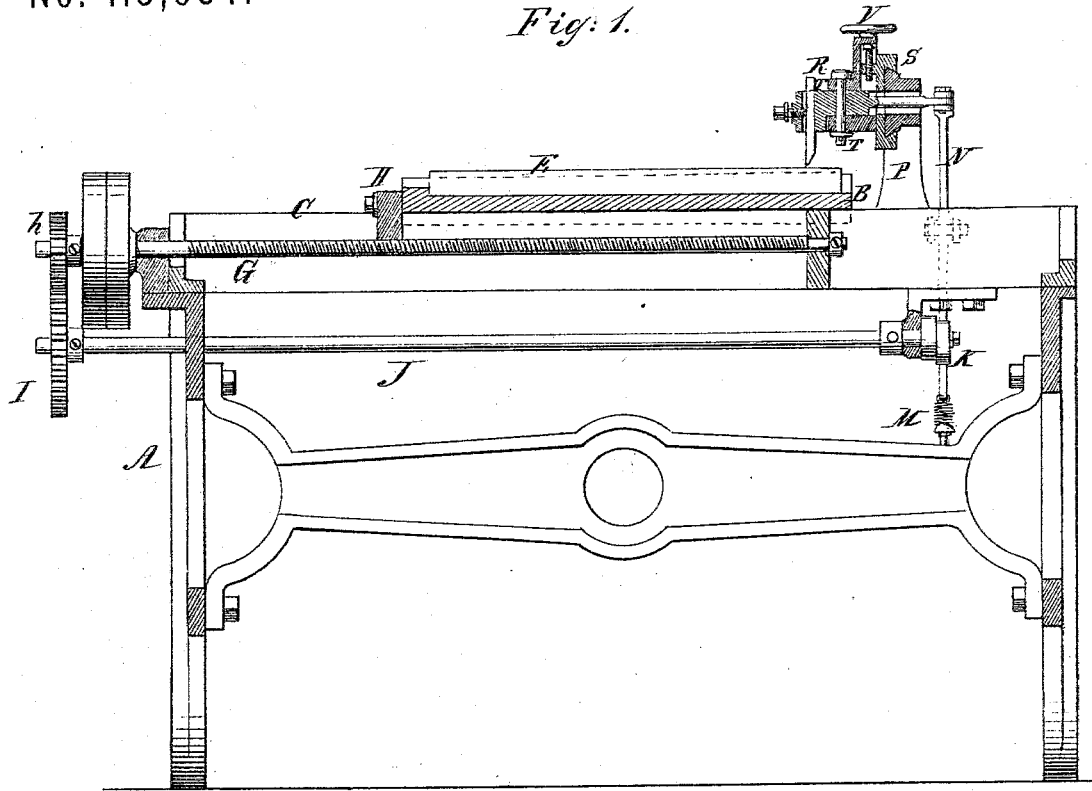
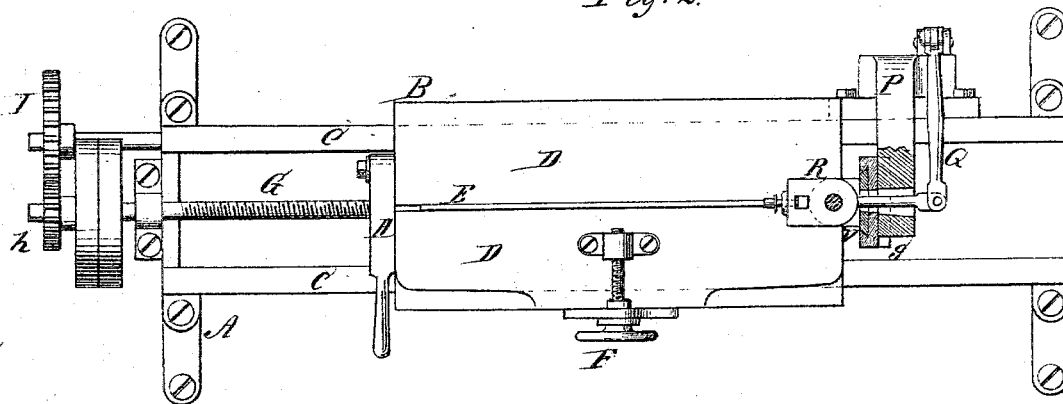


Fig: 2.



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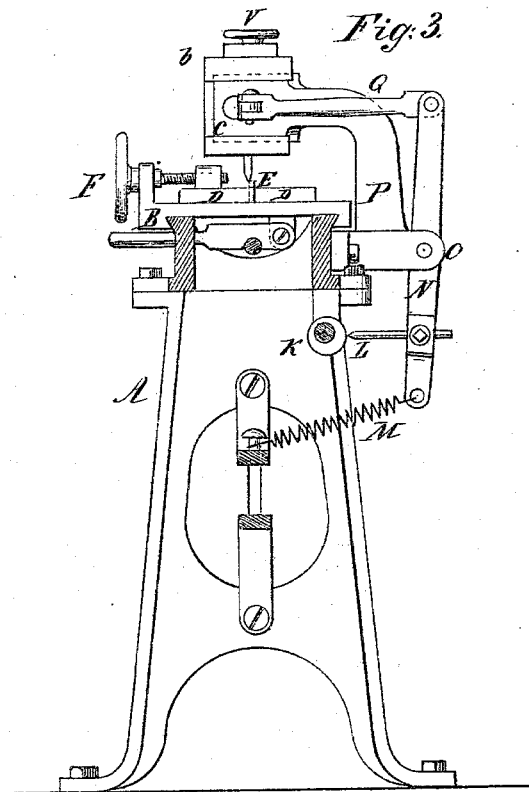
per
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Fig. 4.

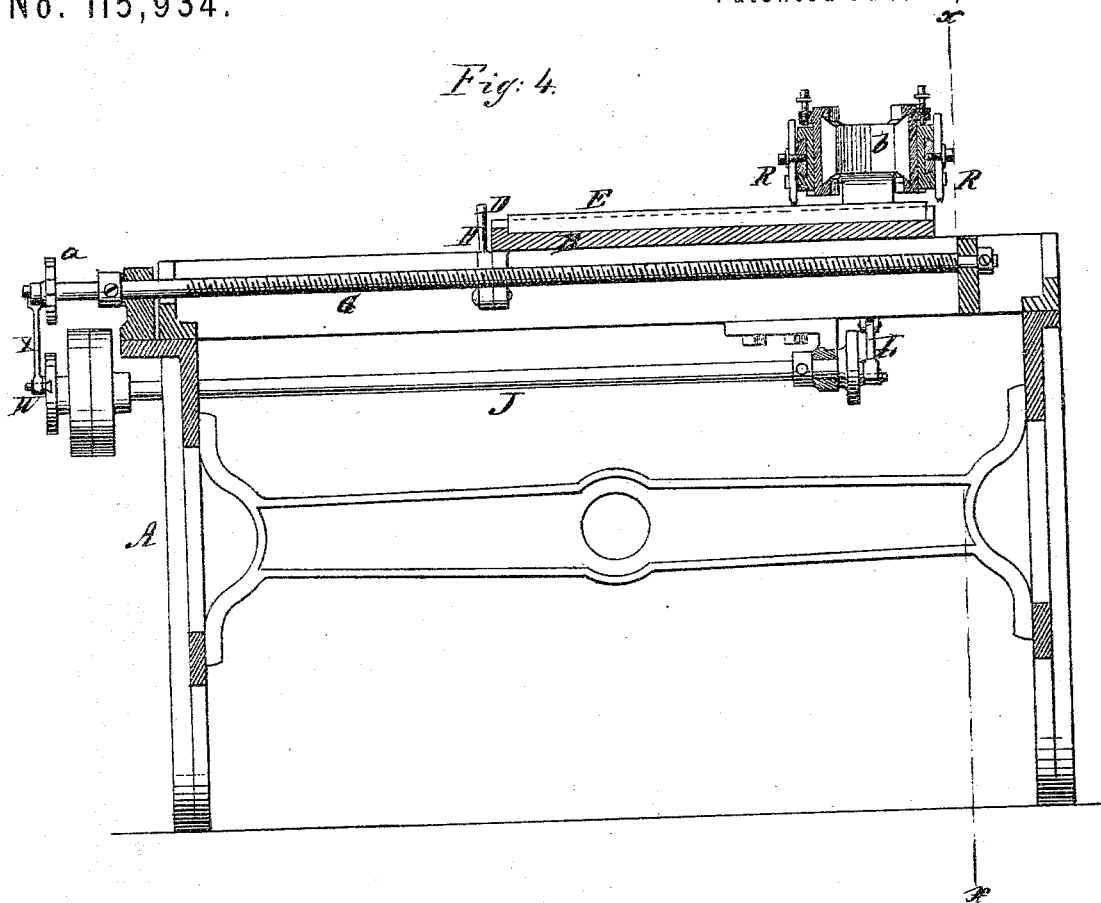
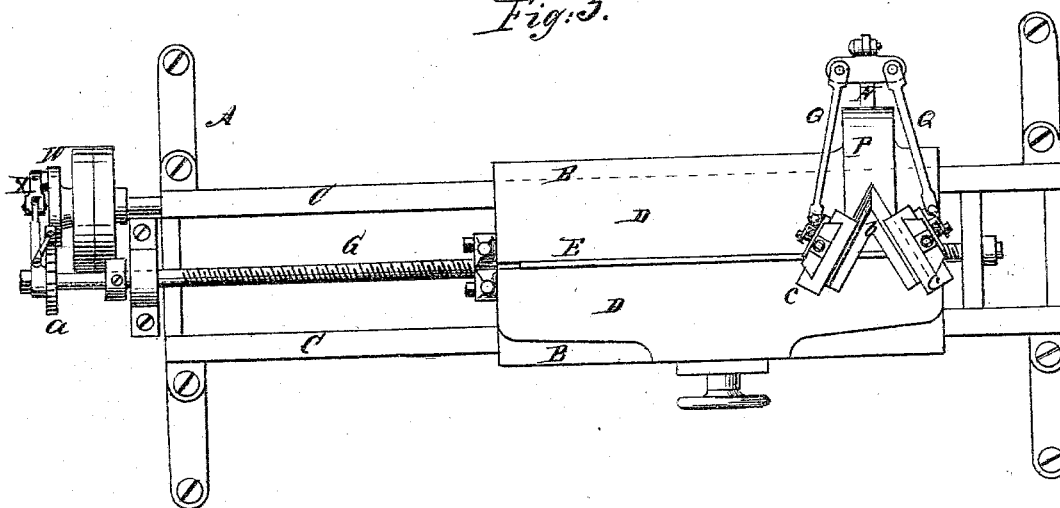


Fig. 5.



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Fig. 6.

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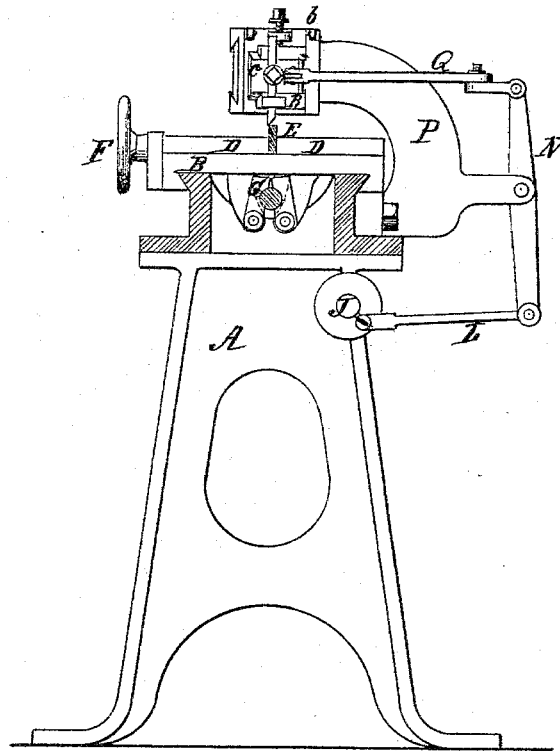


Fig. 7.

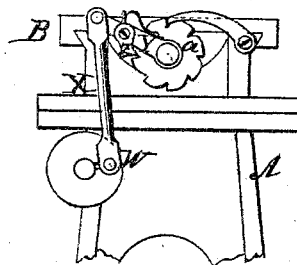


Fig. 8.



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UNITED STATES PATENT OFFICE

JAMES M. CONNER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR ORNAMENTING PRINTERS' RULES.

Specification forming part of Letters Patent No. 115,934, dated June 13, 1871.

To all whom it may concern:

Be it known that I, JAMES M. CONNER, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Machinery for Ornamenting Printers' Rules; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 is a side elevation of a longitudinal vertical section of machine made according to my invention. Fig. 2 is a plan view of the machine shown in Fig. 1. Fig. 3 is an end elevation looking from right to left of Fig. 1. Fig. 4 is a longitudinal vertical section of a modification. Fig. 5 is a plan view of the modification. Fig. 6 is a vertical cross-section of Fig. 4, the plane of section being in the line *x x*. Figure 7 is an end view of the feed in Fig. 4, looking toward the right. Fig. 8 represents rules ornamented by means of my improvement.

Similar letters indicate corresponding parts.

This invention relates to cutting wavy, angular, transverse, or other lines or ornaments on the edge of printers' rules for printing purposes; and it consists in a machine having a movable bed-plate for carrying and presenting the rule to the cutter, said bed-plate being moved longitudinally by means of a screw-rod and nut, in the ordinary manner. The cutter is supported adjustably in a cutter or tool-stock over the bed-plate, and is reciprocated by means of a connecting-rod, which is actuated from a cam on a shaft which is driven from the same motion that drives the screw-shaft. The cutter can be arranged in different ways, for the purpose of varying the character of the cut or ornaments to be produced, and I have in this example shown two such modes, whereby I produce longitudinal wavy lines, and straight lines, at an angle with the length of the rule. In producing wavy lines the feed-screw and cam-shafts can be driven by ordinary gearing of the character shown in Figs. 1 and 2; but in cutting lines or ornaments transversely to the rules, whether oblique or at right angles thereto, the feed is intermittent, as shown in Figs. 4, 5, and 7.

The letter A designates the frame of my machine, and B a movable clamping bed-plate, which supports the work and slides on ways C C on the top of the frame. The top of the bed-plate is provided with clamps D D, which receive the rule E between them, one of the clamps being made movable in a lateral direction, its motion being controlled by means of a screw, F, working in a bracket that rises from the side of the frame, as is seen in Figs. 2 and 3. The bed-plate B is moved toward and under the cutter-stock by means of a screw-shaft, G, which has proper bearings in the frame A, and of a sectional nut, H, hinged to the front end of the bed-plate, as is shown in Figs. 1 and 2, in such a manner that when it is held down upon the screw the bed-plate is moved along by it, and when the nut is raised out of contact with it the bed-plate can be moved back from under the cutter, ready for a fresh movement. The screw F carries at one end a fast-and-loose pulley, and also a driving-pinion, *h*, which gears with a pinion, I, of larger diameter, fixed on a parallel cam-shaft, J, which has its bearings in the frame below the screw-shaft. The cam-shaft extends into the frame past the place of the cutter-stock, and has upon it an adjustable cam, K, against whose periphery a finger, L, is held by a spring, M, one end of which is fastened to the frame A, while its other end is secured to the same arm of the vertical lever N, to which the finger L is secured. The vertical lever N works on a pivot, O, in a bracket, P, and the upper end of said lever N has pivoted to it one end of a connecting-rod, Q, whose other end is pivoted to the tail of the cutter or tool-stock R. The bracket P rises from the side of the frame, and extends over the center of the frame, where it forms a guide for the adjustable carriage S. The tool-stock R extends through the bracket P and carriage S, which have openings through them that allow it to swing horizontally therein, and it is pivoted in front of the carriage S, between the horizontal lips T T, which project from an adjustable slide, U, that is guided vertically in the face of the carriage S, and is adjusted thereon to regulate the height of the stock by means of the screw V.

By means of this construction and arrangement I am enabled to cut continuous wavy lines upon the edge or surface of the rule as

it travels along under the cutter, the tool-stock being adjusted to produce the different lines as the work proceeds. The cam K, by being made adjustable on its shaft, allows of changes being made in the relative curvatures of the waved lines produced; and in order to produce increased or diminished curvatures it is only necessary to change the cam for one of greater or lesser eccentricity. By varying the relative speed of the feed of the rule, and of the movements of the cutter, different combinations can be made, so as to produce wavy lines whose curves differ from each other.

My improvement can be modified to produce different forms of ornamental lines, and in Figs. 4, 5, 6, and 7, I have shown modifications whereby I produce lines cut across the rules at right angles thereto, and also diagonal lines. In order to cut lines across the rules, either curved, diagonal, or at right angles thereto, I use the feed-movement shown in Figs. 4, 5, and 7, instead of that shown in Figs. 1 and 2. This modification in the feed consists in making the cam-shaft the driving-shaft by placing thereon the fast-and-loose pulleys above mentioned, and driving the screw-shaft G therefrom by means of an adjustable crank, W, and connecting-rod X, whose outer end is pivoted to one end of an arm, Y, whose other end works loosely on the screw-shaft, said arm Y carrying a driving spring pawl, Z, which is so arranged as to engage teeth cut on the periphery of a pattern feed-wheel, *a*, that is fixed on said screw-shaft G. By this means an intermittent feed-motion is given to the screw-shaft, the arrangement being such that the shaft is at rest while the cutter is acting, and is in motion to feed the rule along in the intervals between the movements of the cutter. The notches or teeth in wheel *a* can be varied for the purpose of altering the feed, and in that manner many changes in the work can be made and different ornamental effects be produced.

Another modification relates to the cutting apparatus, and the same is shown in Figs. 4, 5, and 6, where the bracket P terminates above the bed-plate in a wedge-shaped frame, *b*, whose faces form guides for reciprocating carriers *c c*, which are moved horizontally to and fro across the frame A by means of connecting-rods Q Q pivoted to the vertical lever N. The tool-stocks R R are adjusted on the face of the carriers in guides, in the usual manner, as is shown in Figs. 5 and 6. In this modification the motion is derived (see Figs. 4 and 6) from a crank on the shaft J, instead of from a cam, as in Figs. 1 and 3.

It will be observed that the arrangement of cutters shown in Figs. 4, 5, and 6 will produce across the edge or face of the rule oblique lines, which, by their intersections, will make a series of lozenge-shaped figures of greater or lesser length or dimensions, according to the feed or to the relative movement of the cutters. By altering the direction of motion of cutter to a right angle with the rule right-angled cuts or lines are produced, and in like manner several different styles of lines can be produced on the rules without departing from my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the screw-shaft G, clamping bed-plate B, and cam-shaft J actuating the tool-stock R, substantially as described, for producing wavy lines upon printers' rules, as set forth.

2. The combination, with the screw-shaft G and clamping bed-plate B, of the pattern feed-wheel *a*, actuated by a pawl from the shaft J, substantially as described, for the purpose of producing crosswise or angular cuts or lines on the rules.

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Witnesses:

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