(No Model.)

J. HOPE, Jr.

STEEL AND LITHOGRAPH PLATE RULING MACHINE.

No. 448,922. Patented Mar. 24, 1891.

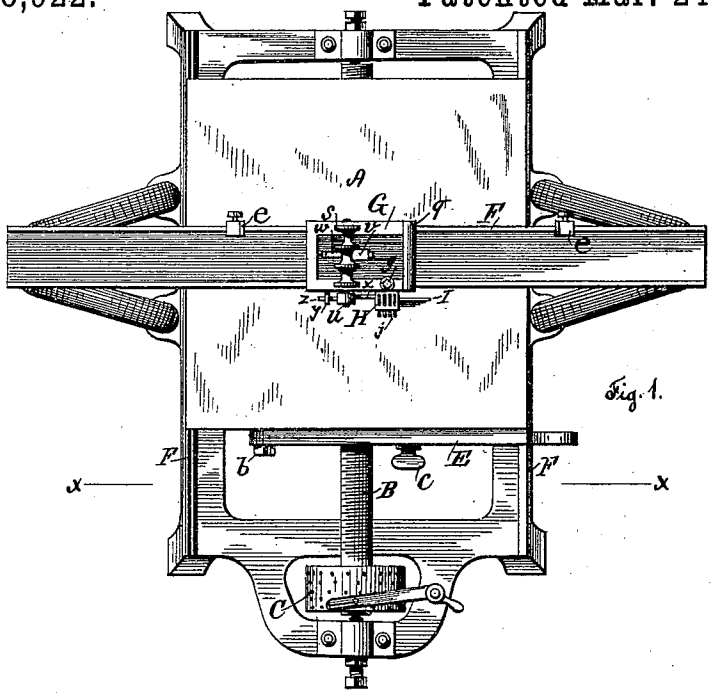


Fig. 1.

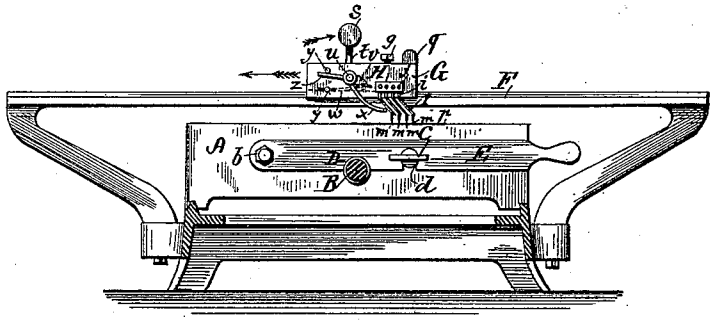


Fig. 2.

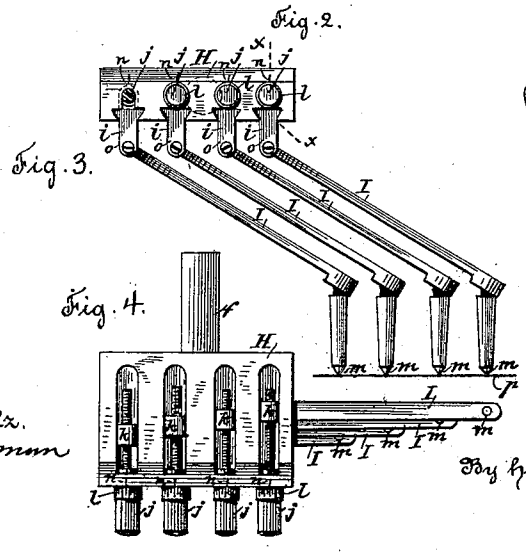


Fig. 3.

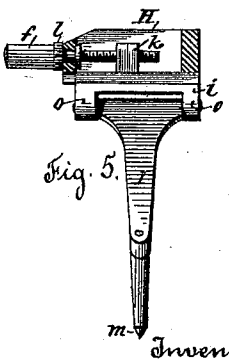


Fig. 5.

Fig. 4.

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STEEL AND LITHOGRAPH PLATE RULING MACHINE.

SPECIFICATION forming part of Letters Patent No. 448,922, dated March 24, 1891.

Application filed October 14, 1890. Serial No. 368,145. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOPE, Jr., a citizen of the United States, and a resident of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Steel and Lithograph Plate Ruling Machines, of which the following is a specification.

The nature of my invention consists in a carriage provided with two or more ruling-points, which are arranged one behind the other and offset laterally, so as to rule the desired parallel lines upon the movement of the carriage in the proper direction, in the combination therewith of means for raising the ruling-points from the plate to provide for their backward movement, and in the relative graduation of the index of the feeding-screw, as hereinafter fully set forth.

Figure 1 represents a top view of the machine. Fig. 2 represents a vertical section taken in the line *x x* of Fig. 1. Fig. 3 represents a side elevation of the holding-block and ruling-points separate from the carriage. Fig. 4 represents a top view of the same. Fig. 5 represents a vertical section taken in the line *x x* of Fig. 3.

In the accompanying drawings, A represents the sliding table upon which the plate is to be secured for ruling.

B is the screw which serves to feed the table progressively, the said screw being provided with the index-wheel C, by means of which the proper uniform intermittent movement for feeding the plate under the ruling-points can be imparted to the screw. The half-nut D is formed at one side of the hand-lever E, which is pivoted to the table A at the point *b* and held in engagement with the operating-screw B by means of the thumb-screw *c*, which enters the notch *d* in the lever E, and by means of the hand-lever E the table A can be either brought into engagement with the screw B or be disengaged therefrom, as desired.

Above the table A is arranged the track F, upon which is placed the hand-operated sliding carriage G, the movement of which along the track can be limited in either direction by means of the adjustable stops *e e*. The carriage G is provided at one side with the holding-block H, having a stem *f*, which is adapted for insertion into a hole in the side of the carriage, where it is retained by means of the set-screw *g*. The holding-block H is provided with several sliding bars *i i*, four being represented in the drawings; but either a greater or less number can be employed, if preferred, the said sliding bars being made capable of adjustment by means of a screw *j*, which is journaled to the block H and passes through a nut *k*, formed upon the upper side of the sliding bar, the said screw being preferably provided with a collar *l*, having its periphery graduated, as shown in Figs. 4 and 5, so that in conjunction with the datum-line *n* upon the corner of the holding-block H the offset distance between the ruling-points *m m* can be measured, and by the proper rotation of the screw guided by the graduations of the same the ruling-points *m* can be set at any required distance from each other to rule the lines upon a plate *p*, which is held upon the table A.

To the ears *o o* of the sliding bar *i* is pivoted the arm I, to the end of which is attached the ruling-point *m*, so that the said ruling-point may rest by gravity upon the plate *p*, as shown in Fig. 3.

When the several ruling-points *m m* have been offset from each other to the proper distance by turning the adjusting-screws to the proper point, as indicated by the graduated lines upon the collar *l*, then by moving the carriage G forward upon the track F, so that the ruling-points *m m* will be drawn over the surface of the plate *p*, equidistant parallel lines will be ruled upon the plate, the index-wheel C being so graduated as to cause at each movement of the same the corresponding movement of the table A through a space greater by one than the number of spaces between the several ruling-points employed upon the carriage, whereby the proper parallel ruling of the plate will be effected for its whole width.

In operating the carriage G the ball of the hand will rest against the bar *q* with the first three fingers resting in the grooves of the handle *s* at the upper end of the arm *t*, the said arm being attached to a rock-shaft *u*, which is journaled in the sides of the carriage, and upon the rock-shaft *u* is placed the

short arm v, against which a spring w is made to press in an upward direction, so as to throw the handle s forward in the direction of the movement of the carriage, and upon the outer end of the rock-shaft u is attached the lifting-arm x, which on its upward movement under the resilient action of the spring w serves to raise the ruling-points m m from the surface of the plate p preparatory to the backward movement of the ruling-points over the said plate, the said lifting-arm being held at its downward position against the upward action of the spring w by an inward movement of the fingers of the operator, which rest upon the handle s, the pins y y serving as stops to limit the movement of the handle s and the lifting-arm x by engagement with the stop-arm z.

Heretofore it has been considered impracticable to rule more than one line at a time on account of the extreme nearness of the lines to each other, whereby it is rendered impossible to place the ruling-points side by side; but by placing the pivoted arms which carry the ruling-points one behind the other I am enabled to provide for the adjustable movement and offset of the several ruling-points as desired, whereby the work can be accomplished in a small fraction of the time heretofore required for the purpose and with greater nearness to perfection.

I claim as my invention—

1. In a ruling-machine, the combination, with the feeding-table, the track, and the carriage, of two or more laterally-adjustable pivoted arms provided with ruling-points arranged one behind the other and offset laterally, so as to rule the desired parallel lines upon the proper movement of the carriage, substantially as described.

2. In a ruling-machine, the combination, with the feeding-table, the track, and the carriage, of two or more laterally-adjustable pivoted arms provided with ruling-points arranged one behind the other and offset laterally, so as to rule the desired parallel lines upon the proper movement of the carriage, and means for raising the ruling-points from the work preparatory to their backward movement, substantially as described.

3. In a ruling-machine, the combination, with the feeding-table, the track, and the carriage, of the sliding bars, the arms pivoted to the sliding bars, the ruling-points attached to the pivoted arms, and the graduated screws whereby the lateral position of the said bars and ruling-points can be adjusted for ruling parallel lines at a specified distauce apart, substantially as described.

4. The combination, with the feeding-table, the track, and the carriage carrying two or more ruling-points arranged one behind the other and offset, as described, of the operating-screw and the index which is graduated to cause the movement of the feeding-table through a space which is one space greater than the number of spaces between the ruling-points employed, substantially as described.

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