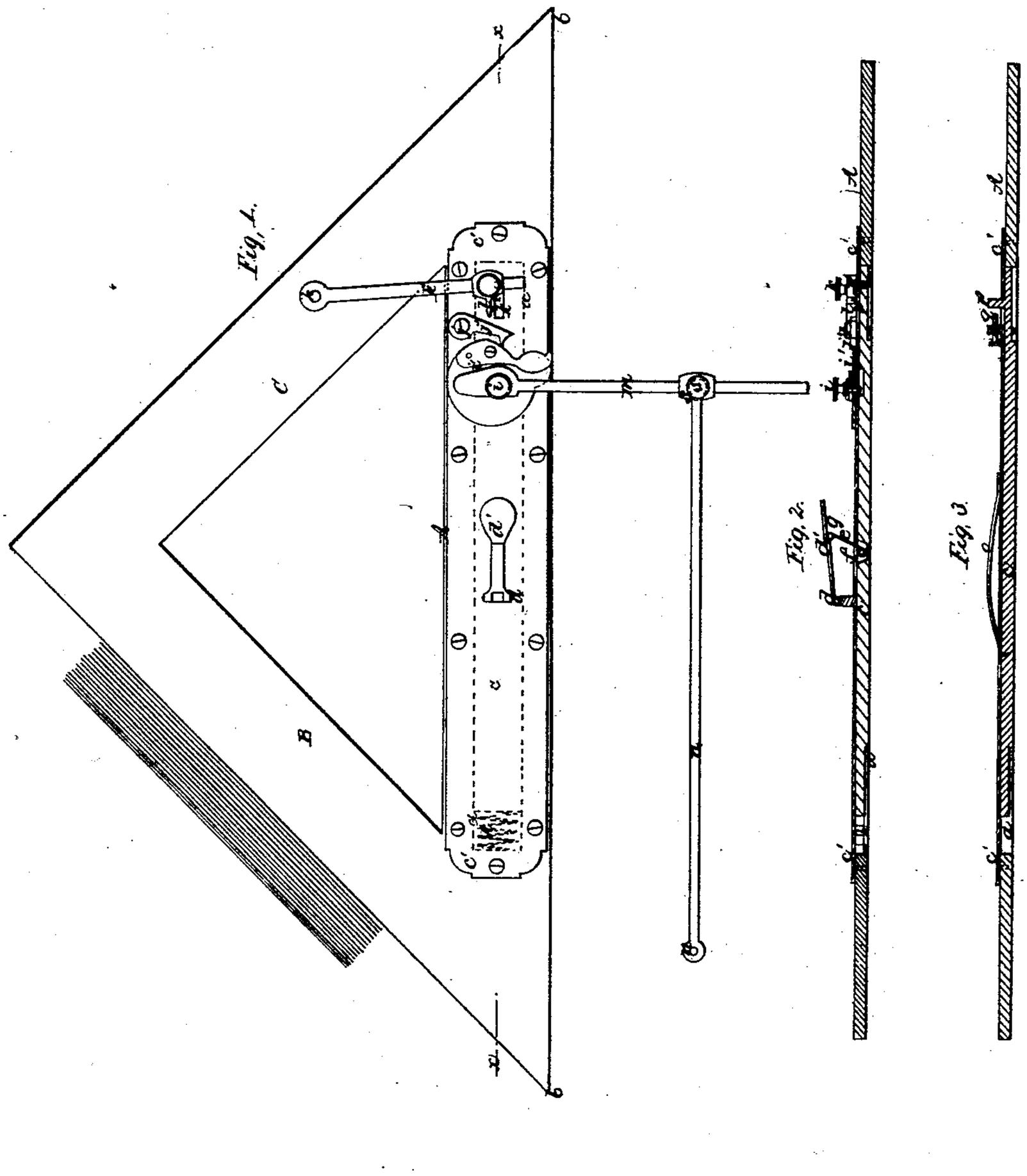
R. EICKEMEYER.

Parallel Ruler.

No. 14,396.

Patented Mar. 11, 1856.



UNITED STATES PATENT OFFICE.

R. EICKEMEYER, OF YONKERS, NEW YORK.

IMPROVEMENT IN PARALLEL RULERS.

Specification forming part of Letters Patent No. **14,396**, dated March 11, 1856.

To all whom it may concern:

Be it known that I, R. EICKEMEYER, of Yonkers, in the county of Westchester and State of New York, have invented an Improved Parallel Ruler for Drawing, Engraving, &c., which I term the "Graduating Parallel Ruler;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings of the same, forming part of this specification, in which—

Figure 1 is a plan. Fig. 2 is a section in the line *x x* of Fig. 1. Fig. 3 is a section corresponding with Fig. 2 of the instrument, somewhat modified.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a ruler with certain appliances, whereby it can be moved to rule parallel lines at equal or otherwise graduated distances from each other.

To construct my improved parallel ruler as shown in Figs. 1 and 2 of the drawings, I take a ruler of wood, metal, or other suitable material, either in the form of a triangle, as shown in Fig. 1, or a ruler having simply a base-piece, A, and a piece like one of the sides B or C of the triangle standing at an angle to the said base, preferably not greater than a right angle.

In the base-piece A, I provide a slot, *a*, (shown in section in Fig. 2 and dotted in Fig. 1,) said slot being parallel with the base line *b b*, and in the said slot I fit easily a piece of wood or metal, *c*, which I term the "foot-piece," in such a manner as to slide freely therein, the face or under surface of the said foot-piece being flush, or nearly so, with the under surface of the ruler. I cover the slot *a* with a plate, *c' c'*, and to the upper side of this plate I attach, by a pivot or fulcrum, *d*, a small lever, *d'*, which connects by a second lever, *e*, passing through a slot in the plate *c' c'* with the foot-piece *c*, the point *f* of connection of the said lever *e* with the foot-piece, which is the fulcrum of the said lever, being so placed that the parts ef the levers between the point *g* of their connection with each other and their fulcra form an acute angle, as shown in Fig. 2. The foot-piece is faced on its under side with india-rubber or other material capable of producing a great degree of friction on the surface to be ruled. The foot-piece *c* has a spring, *h*, applied to it at one end of the slot *a* in such a way as to force it up to the other end of the slot, and to increase the angle between the two levers. When the ruler is laid upon the surface to be ruled, the pressure of the finger of the draftsman or engraver upon the lever *d'* will cause the foot-piece *c* to take a firm hold upon the said surface and become stationary, making the point *f* or fulcrum of the lever *e* stationary, and causing the said lever *e* to convert the lever *d'* into a link to draw along the ruler. The removal of the pressure of the finger from the lever *d'* and application of a gentle pressure to the base-piece A will cause the ruler to take a firmer hold upon the surface than the foot-piece does, and will allow the spring *h* to force the foot-piece in the direction in which the ruler has moved till it comes to the end of the slot *a*. By alternately applying the pressure of the fingers to the lever *d'* and to the base-piece, or by applying continuously a gentle pressure to the base-piece and intermittently applying a greater pressure to the lever, the ruler may be rapidly moved along the surface to be ruled, and if the base-line *b b* is held in contact with a straight-edge parallel lines may be ruled from either of the sides B or C.

In order to graduate the distance between the ruled lines, the ruler is provided with a cam, *i'*, fitted to work on a center, *i*, a stop-piece, *j'*, fitted to work on a center, *j*, and an arm, *k'*, one end of which is fitted to work on a center, *k*, and the other is attached to the sliding foot-piece *c* by a connection working through a slot, k^2, in the plate *c' c'*. This arm is provided with an adjustable finger, *l*, opposite the stop-piece *j'*. The cam has attached to it a lever, *m*, to which is attached a rod, *n*. This lever and rod are only used, however, in ruling lines at irregularly or progressively graduated distances, and may be taken off when the rule is used for ruling equidistant lines.

To rule equidistant lines, the cam *i* is placed in any convenient position and secured by its center screw, *i*, and its periphery forms a resting place for the point of the stop-piece *j'*. In moving the ruler by the intermittent depression of the lever *d'*, the stop-piece is every time brought into contact with the finger *l* of the arm *k'*, which stops the further movement, thus allowing no more than a certain limited

movement of the rule. The distance of the movement of the rule may be increased or diminished to any reasonable extent by changing the position of the cam *i'* to bring a less or more prominent part of its periphery opposite the stop-piece *j'*, or by moving the finger *l* farther from or nearer to the center *k* of the motion of the arm.

To rule lines at progressive or irregular distances apart, the center screw of the cam is loosened, the lever *m* is attached, and the rod *n* is secured by a pin inserted in the hole *n'* to the fixed straight-edge which guides the ruler. The movement of the ruler then produces a movement of the cam upon its center *i*, and thus changes the distance of the motion according to the form of the cam. The fineness or coarseness of the ruling is varied by a sliding connection, *s*, of the rod *n* and lever *m*, which increases or diminishes the effective length of the lever.

By employing cams or patterns *i'* of different proper forms, line shading or graduations of the peripheries or perimeters of representations of cylinders or other bodies may be ruled.

Instead of a cam or circularly-moving pattern, *i'*, a pattern moving in a straight line may be employed in such a manner as to be its equivalent.

Fig. 3 shows a much simpler method of constructing a ruler for common purposes. The foot-piece *c* and the base-piece A are connected by an arched spring, *o*, instead of by the levers *d'* and *e*. By intermittently pressing upon this spring as upon the lever *d'* the same movement is produced as before described without a spring, *h*, as the duty of the latter spring is performed by the spring *o*. To regulate the distance of the movement of the ruler, a stop-piece, *p*, is attached rigidly to the foot-piece to work through a slot in the plate *c' c'*, and an adjusting screw, *q*, is fitted to a fixed piece, *r*, above the plate *c' c'*. By shifting this screw the distance of the movement may be varied to rule parallel lines at various equal distances apart. The above connection of the foot-piece with the ruler to produce the movement of the latter is equivalent to the levers and spring shown in Fig. 1.

Without confining myself to the form of the ruler, what I claim as my invention, and desire to secure by Letters Patent, is—

Providing the ruler with a movable foot-piece, *c*, and suitable stops, to operate substantially as and for the purpose herein described.

R. EICKEMEYER.

Witnesses:
JOS. GEO. MASON,
WM. TUSCH.