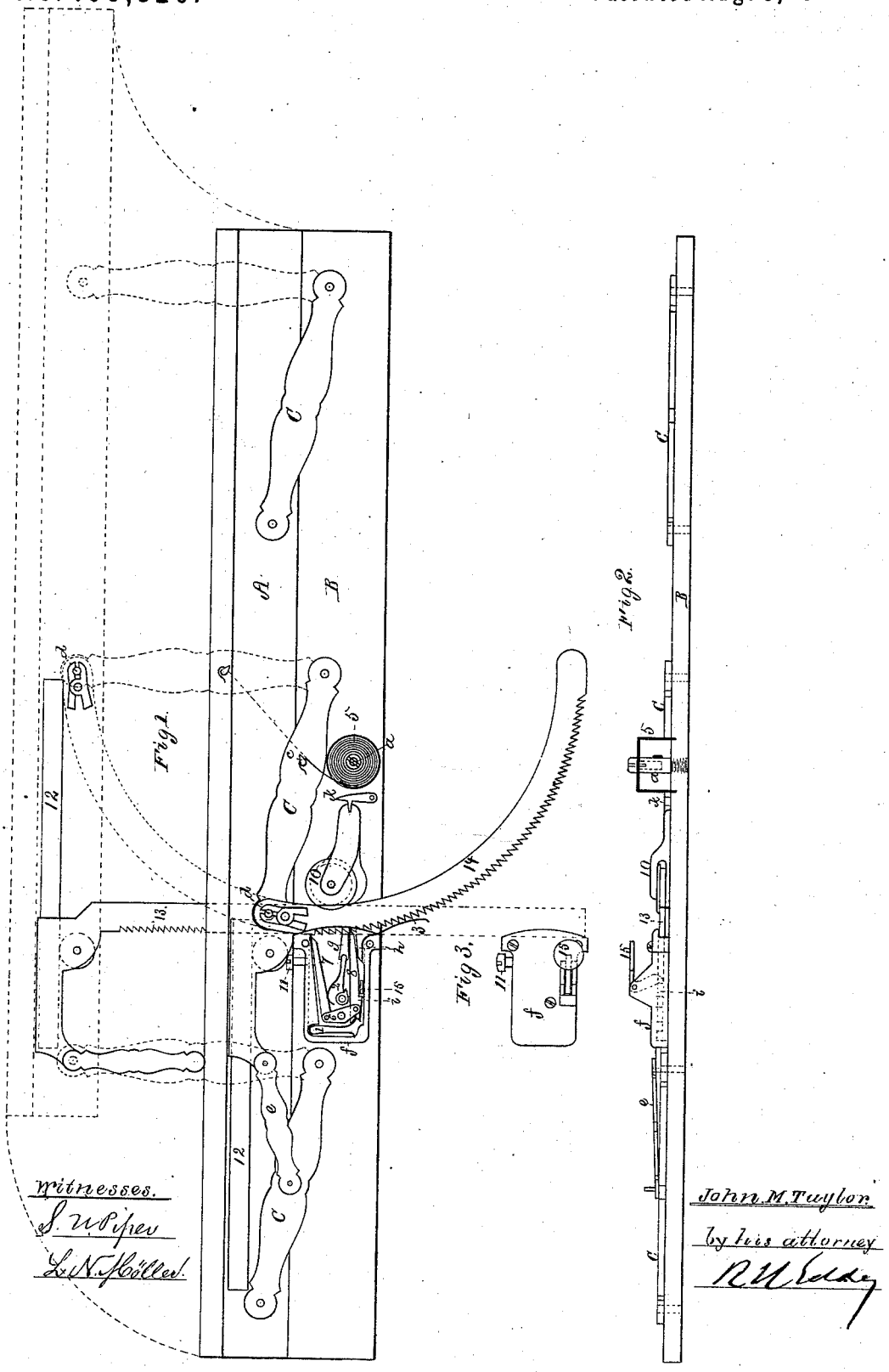
J. M. TAYLOR.

Parallel Ruler.

No. 166,320. Patented Aug. 3, 1875.



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JOHN M. TAYLOR, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PARALLEL RULERS.

Specification forming part of Letters Patent No. **166,320**, dated August 3, 1875; application filed April 14, 1875.

To all whom it may concern:

Be it known that I, JOHN M. TAYLOR, of Boston, of the county of Suffolk and State of Massachusetts, have made a new and useful invention having reference to Parallel Rulers for the use of draftsmen; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, and Fig. 2 an edge elevation, of a parallel ruler with my improvement. Fig. 3 is a top view of the escapement-case, which, in Fig. 1, is shown as without its cap or cover, in order to exhibit the details of the escapement.

The parallel ruler, as shown in such drawings, is intended for ruling parallel lines, either at equal distances apart or at gradually-increasing distances asunder, to represent the shading of a round or cylindrical surface. For this purpose the ruler, composed of two bars or rules, connected by a series of two or more junction-links of equal lengths pivoted to the rules, is furnished with a mechanism to operate in moving one ruler equal distances toward the other, or at unequal or shading distances.

The two rules are shown at A and B as connected by the links C C C as in a common parallel ruler. To the base ruler B there is applied a spiral or volute spring, 5, having its inner end fixed to a rotary arbor, *a*, provided with an arm or handle for revolving it in order to wind up the spring. The outer end of the spring is hooked upon a stud, *c*, projecting from the middle connection-link C. Furthermore, there is applied to the ruling-rule A either a straight toothed rack, 13, or a curved quadrantal rack, 14, the teeth of each being triangular or like saw-teeth. The straight rack is for enabling parallel lines at equal distances apart to be ruled by means of the instrument, the curved rack being to enable parallel lines at variable distances apart to be ruled by means of such instrument, and by a pen or pencil. The curved rack is pivoted at or near one end to the bar A, the pivot being shown at *d*. The straight rack, however, arranged at a right angle to the rule A, is supported by and so as to be capable of sliding laterally on a rail, 12, fixed on said rule A. In order to facilitate its movement on the rail the rack is connected with the outer link C by a short link, *e*, pivoted to the rack and to the link C, as shown. The distance between the axes of the pivots of the link *e* is half that between those of the pivots by which the bar C is connected to the two rules A B. In Fig. 1 the dotted lines represent the positions of the principal parts when the rule A is at its maximum distance from the base rule B. Either rack is to be operated by an escapement mechanism arranged in a case or box, *f*. In said box is a lever, 6, which, at its middle, turns freely on a fulcrum. To this lever, at its opposite ends, two pawls, 7 and 8, are jointed, one of which—viz., that marked 8—extends between two guides, *g h*, and has at one side of it a projection or shoulder, *i*. A spring, 1, arranged in the box, is to force the pawl 8 forward. There is also in the box a spring, 2, arranged, as shown, to press the pawl 7 toward an adjusting-screw, 11, screwed into the side of the box. An angular lever, 15, is pivoted to the box, and has its lower arm resting against the shoulder *i*. In order to keep the rack up to a guide or lever abutment, 10, pivoted to the ruler B, and notched, as shown, to receive a latch or catch, *k*, a spring, 3, fastened to the box *f*, may be used, the spring being caused to bear against the toothed edge of the rack.

By pressing down the upper arm of the lever 15 the pawl 8 will be forced back out of engagement with the rack, the pawl 7 being at the same time shot forward into engagement with it. The instant the first pawl may leave the rack the second pawl will engage with such rack, and as soon as the pawl 8 leaves the rack such rack, by the contractile force of the spring 5, will be moved lengthwise, and will continue to move until the pawl 7 may bring up against the abutment or guide *g*. Thus the ruler A will be moved toward the ruler B by the spring 5 a short distance, determined by the movement of the pawl 7, up to the guide or stop *g*. On removing the hand from the lever 15 the spring 1 will cause the pawl 8 to be shot forward up to the rack, and the pawl 7 to be moved backward, the spring 2 in the meantime throwing the pawl 7 back against the adjusting-screw. By means of the said screws the lateral movement of the pawl 7 may be determined, so as to cause it to pass over one or

more of the teeth of the rack, as occasion may require, to adapt the instrument to ruling lines at greater or less distances apart.

If desirable, one or more friction-rollers, to diminish the friction of either rack on the part against which it may slide, may be employed.

To use the instrument a person has first to draw the ruler A out to the proper distance from the ruler B, and having adjusted the ruling-edge of the first ruler against the starting line, to which a series of lines are to be drawn parallel, he should press with his left hand the ruler B down upon the paper, and with one finger thereof suddenly depress the lever 15. On this being done, the ruler A will immediately be moved by the spring 5 the necessary distance toward the ruler B for the ruling of the first line. In like manner he is to press after each line may have been ruled.

What I claim as my invention is as follows:

1. The combination of the spring 5, the toothed rack 13 or 14, and an escapement, substantially as described, with the two rules A B, connected by links C C, all being to operate essentially as specified.

2. The said escapement, substantially as described, composed of the lever 6, pawls 7 8, lever 15, guides *g h*, and springs 1 and 2, arranged and combined as specified.

3. The adjustable abutment or screw 11, in combination with the escapement, and to operate therewith, as and for the purpose explained.

4. The straight rack 13, applied to the rule A, to slide rectilinearly thereon, and connected to the link C by the shorter link *e*, all being substantially as described.

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Witnesses:
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