(No Model.)

J. S. MATHER.

RULER.

No. 372,319. Patented Nov. 1, 1887.

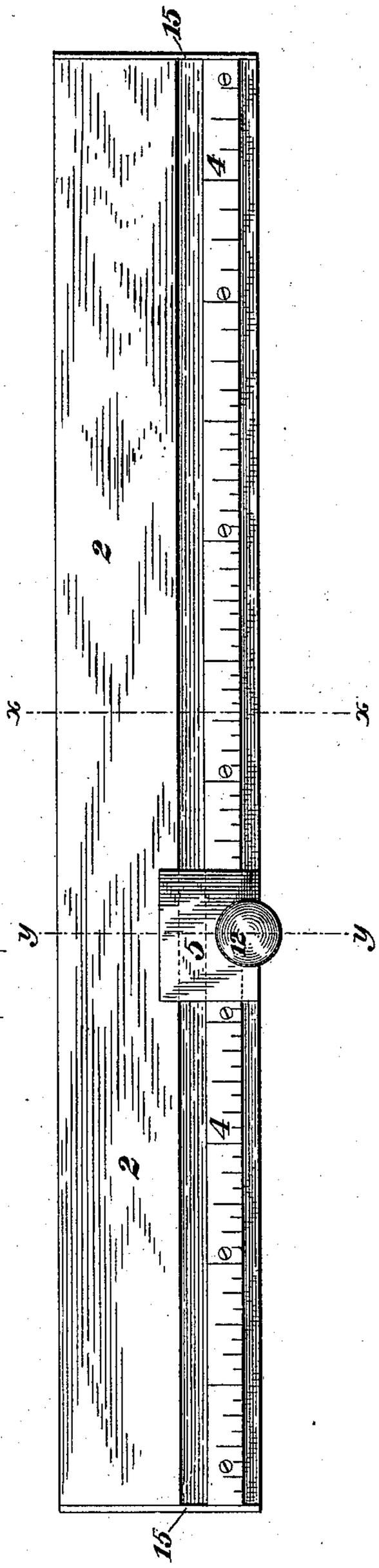

FIG. 1.

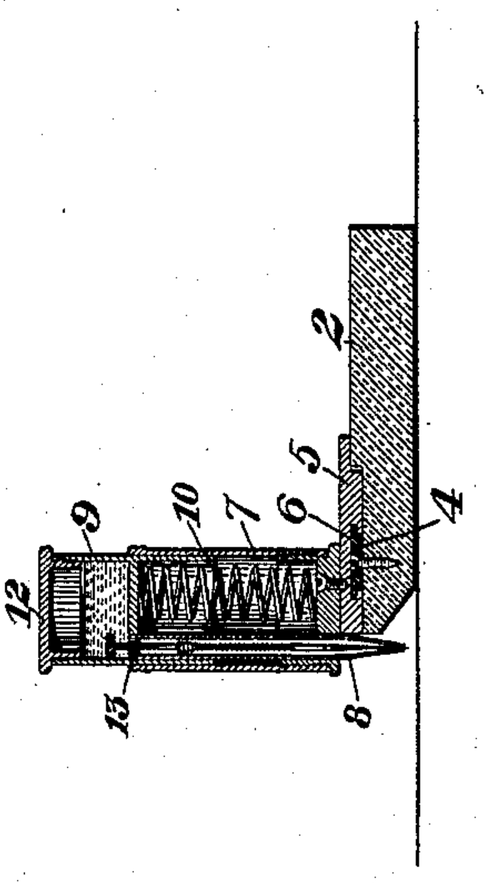

FIG. 3.

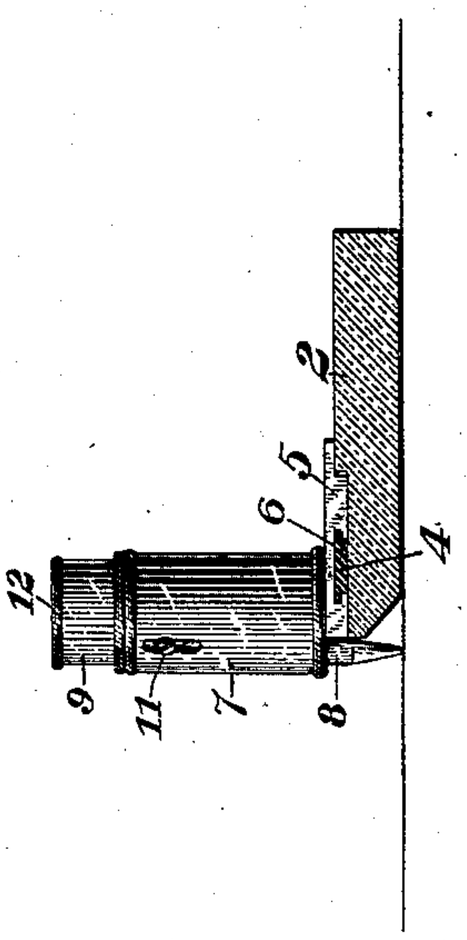

FIG. 2.

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UNITED STATES PATENT OFFICE.

JOSEPH S. MATHER, OF WHEELING, WEST VIRGINIA, ASSIGNOR TO HIMSELF AND G. MACDONALD MATHER, OF SAME PLACE, AND GEORGE A. LAUGHLIN, OF CLEVELAND, OHIO.

RULER.

SPECIFICATION forming part of Letters Patent No. 372,319, dated November 1, 1887.

Application filed August 17, 1887. Serial No. 247,152. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. MATHER, of Wheeling, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in Rulers; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of the ruler and the pen mounted thereon. Fig. 2 is a vertical cross-section on the line *x x* of Fig. 1, showing the pen, reservoir, and case in side elevation. Fig. 3 is a vertical cross section through the pen, reservoir, and case on the line *y y* of Fig. 1.

Like letters of reference indicate like parts in each.

In the drawings, 2 represents a ruler, made of any suitable wood or other material and having permanently arranged on its surface a longitudinal slideway, which, as shown in the drawings, is a dovetailed strip, 4, fastened in a sunken part of the ruler, but which may be otherwise formed. The function of this strip is to form a slideway for a carriage, 5, which bears the pen used in drawing the lines. The carriage has on its under side a dovetailed groove, 6, which fits on the strip and works freely thereon. On the carriage is a vertical case or guide-cylinder, 7, which guides the pen and the ink-reservoir in their vertical movements. The pen is preferably of the well-known stylographic pattern, and consists of a short narrow tube, 8, communicating at the top with a cylinder, 9, of larger diameter, which constitutes the ink-reservoir. A spring-actuated stylus or needle arranged in the tube 8 so as to project from the lower end thereof regulates the flow of ink. The ink-reservoir 9 fits within the guide-case 7 and is movable vertically therein, being normally supported by a spring, 10, interposed between the case and reservoir. The motion is limited by a pin or stud, 11, on the reservoir, working in a vertical slot in the guide-case. The pen-tube 8 projects through a hole in the bottom of the case 7, at the outer edge of the ruler, and moves up and down with the reservoir. The ink is supplied to the reservoir 9 through an opening at the top, which is closed by a screw-cap, 12, and is admitted to the pen-tube by a notch in the small boss or knob 13 at the upper end of the stylus, which boss or knob, as is usual in stylographic pens, fits over the opening at the top of the tube.

In order to use the instrument in drawing straight lines after the reservoir 9 has been charged with ink, the ruler is laid on the paper and the operator places one finger on the carriage 5 and another finger on the top of the ink-reservoir. By pressing on the ink-reservoir it is pushed down inside the case against the spring 10, and the point of the pen is brought into contact with the paper. Then by moving the carriage 5 along the slideway on the ruler a perfectly straight line can be drawn, the proper degree of pressure of the pen on the paper being afforded by the finger on the top of the ink-reservoir.

The pressure of the spring 10, which bears upwardly on the pen, is a very material element of the apparatus, because it enables the pen to be instantly elevated from the paper at any time, and by affording a short vertical motion to the pen it compensates for inequalities in the surface of the paper on which the line is drawn. For example, if the line is drawn across the face of an open book, the short downward motion of the pen will to a degree allow the pen to form the line in the depression in the middle of the book. The spring also makes the operation of the instrument easy, and as much as possible like the operation of a pen when used in the ordinary way in drawing straight lines.

I am aware that, broadly speaking, I am not the first to employ a pen sliding in ways on a ruler for the purpose of drawing straight lines, and I therefore do not make a broad claim thereto.

My invention consists, first, in a pen which, by a suitable carriage, is guided in its motions by a rigid slideway or groove on or in the ruler, the advantage of which over the yielding frame-slideway heretofore suggested to be used is increased steadiness and accuracy of motion of the pen and the improvement of the line

drawn in straightness and regularity. I have shown and described the slideway formed by the brass strip 4, screwed to the ruler. This is a convenient and simple way of constructing the slideway; but obviously it may be otherwise formed—for example, by a simple dovetailed groove cut in the surface of the ruler. At both ends of the ruler the motion of the carriage is limited by means of end pieces or stops 14, 15, which prevent the displacement of the pen from the ruler. This also forms a subordinate feature of my invention.

My invention consists, second, in the combination, with the ruler, of a sliding pen running in ways and upheld by a spring which bears directly or indirectly upon the pen itself, and not upon the ways, as in prior devices. By having the spring bear directly on the pen, the action of the instrument is made regular and even, whereas when the spring is caused to bear upon the ways in which the pen travels the action is very imperfect, and the instrument is almost useless for practical work.

As subordinate to this general feature of my invention, my invention further consists in the specified construction and arrangement of the parts whereby the spring is caused to act upon the pen, and the pen and its reservoir are guided in their vertical motion.

My improved instrument is especially adapted to the use of book-keepers and others who have frequently to rule straight lines. It is cleanly, convenient, and can be used without danger of blotting the paper or making imperfect or incorrect lines. When the reservoir is of proper size, the instrument can be used without refilling with ink for a considerable length of time. The instrument may be very much changed in appearance without departing from the spirit of my invention, as indicated in the following claims. For example, the pen, while conveniently a stylographic pen, is not necessarily so, since any kind of pen, preferably a fountain-pen, may be substituted therefor. Other changes in the parts—such as change of form or the substitution of equivalents—will suggest themselves to the skilled mechanic, and all such I intend to cover by the following claims.

I claim—

1. The combination, with a ruler having a rigidly-attached slideway, of a sliding carriage mounted thereon and a pen secured to the carriage, substantially as and for the purposes described.

2. The combination, with a ruler having a rigidly-attached slideway, of a sliding carriage mounted thereon, a pen secured to the carriage, and stops at the ends of the guideway, substantially as and for the purposes described.

3. The combination, with a ruler, of a sliding carriage mounted thereon, a pen secured to the carriage, and a spring moving with the carriage and yieldingly upholding the pen, substantially as and for the purposes described.

4. The combination, with a ruler, of a sliding carriage mounted thereon, a guide-case, 7, on the carriage, a pen and an ink-reservoir arranged to move vertically within the guide-case, and a spring yieldingly upholding the pen and the ink-reservoir, substantially as and for the purposes described.

5. The combination, with a ruler having a rigidly-attached slideway, of a sliding carriage mounted thereon and a pen secured to the carriage and projecting over the edge of the ruler, substantially as and for the purposes described.

6. The combination, with a ruler having a rigidly-attached slideway, of a sliding carriage mounted thereon, a pen secured to the carriage and projecting over the edge of the ruler, and a spring moving with the carriage and yieldingly supporting the pen, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 12th day of August, A. D. 1887.

JOSEPH S. MATTHEWS.

Witnesses:
THOMAS W. BAKEWELL,
JOHN A. BORDEN.