

(No Model.)

G. R. WILLCOX.
FOLDING RULE.

No. 580,918.

Patented Apr. 20, 1897.

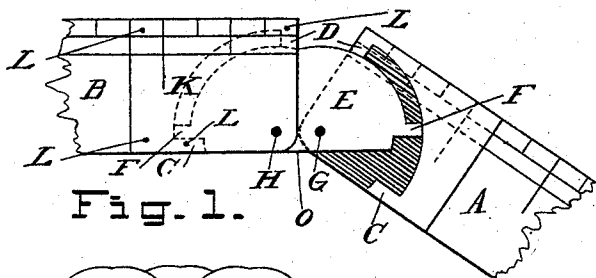


Fig. 1.

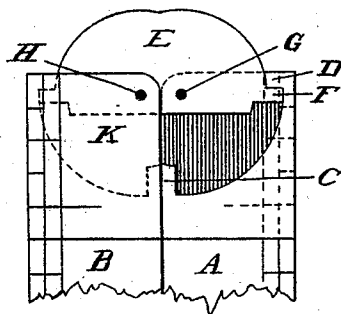


Fig. 2.

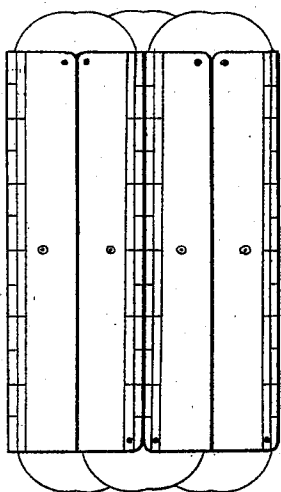


Fig. 7.

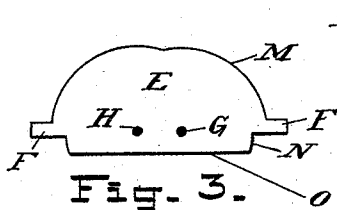


Fig. 3.

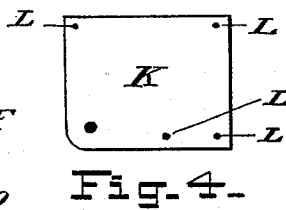


Fig. 4.

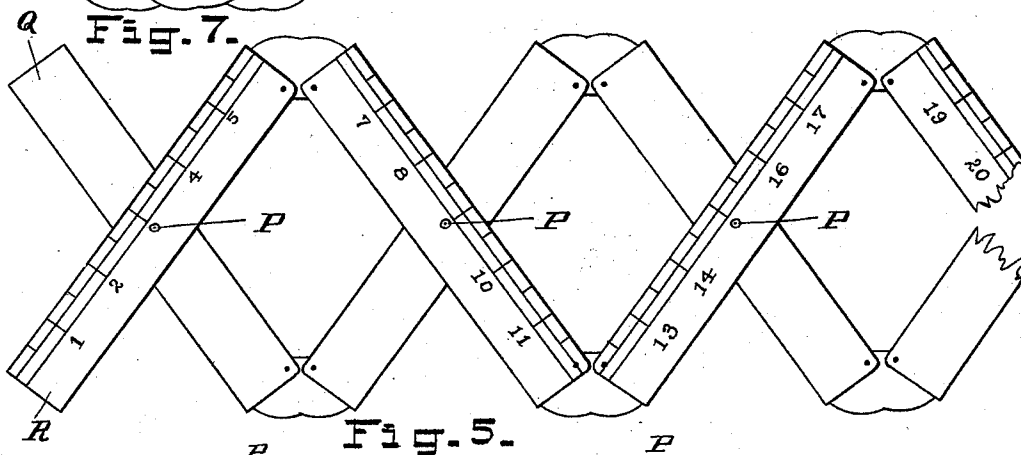


Fig. 5.

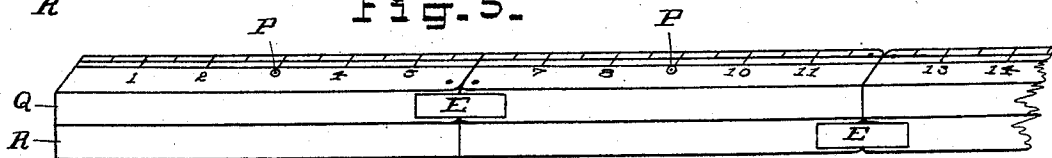


Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE R. WILLCOX, OF STONY FORK, PENNSYLVANIA.

FOLDING RULE.

SPECIFICATION forming part of Letters Patent No. 580,918, dated April 20, 1897.

Application filed March 17, 1896. Serial No. 583,630. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. WILLCOX, a citizen of the United States, residing at Stony Fork, in the county of Tioga and State of Pennsylvania, have invented certain new and useful Improvements in Folding Rules; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in folding rules and measuring-poles.

It has for its objects to provide a knuckle-joint that shall leave the edge of the rule straight and regular, obviating the projection in the joint commonly in use, and to make practicable folding rules or measuring-poles even ten feet or more in length that shall be easily unfolded and folded, rigid when unfolded, not liable to fold up of their own accord, and presenting a straight and regular edge on every side. In order to accomplish these objects, I have devised the construction and arrangement of parts illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view of my improved rule-joint partly open, the legs of the rule being broken away, the covering-plate being removed from one member of the joint, and the internal construction of the other member being shown by dotted lines. Fig. 2 is a like view of the joint when fully closed. Fig. 3 shows in detail the shape of the link member of the joint. Fig. 4 shows in the same way the covering-plate. Fig. 5 is a plan view of my folding measuring-pole partly open. Fig. 6 is a perspective view of the same, partly broken away, showing the pole fully unfolded and ready for use; and Fig. 7 is a plan view showing the pole entirely folded.

Where the same letters of reference occur in different views the same parts are referred to.

It is well known that the ordinary folding rule has projecting joints that interfere with the usefulness of the rule and weaken it. In time also the joints become worn and loose, so that the rule when unfolded will not remain rigid, but is liable to fold up when in use. It is to avoid these manifest disadvantages

that I have contrived my present device.

Referring now to the drawings, A B are contiguous legs of a folding rule furnished with my improved joint. In the end of each leg is suitably formed a recess roughly quadrant-shaped, as shown, provided with stops C D.

E is the link member of the joint, made in the shape shown and provided with the projecting lug F, which by striking against the stops D E limits the movement of the leg A to a path of ninety degrees.

G H are pivots on which the legs A B turn. Plates, as K, cover the recesses in the ends of the legs, one embracing each side of the link part E. The pivots G H are riveted through these plates, and rivets L L L L further bind the plates together and strengthen the whole rule. It will be noted that the link part E is so shaped that the edge M and the edge N are both arcs of circles of which the pivot G is the common center, while the contour of the opposite half has the same relation to the pivot H. The edge O of the link part E is straight, which thus preserves the continuity of the edge of the rule when the rule is open. Thus when the rule is open both edges are straight and regular without any interruption. The link part E having a large bearing-surface, the pivots G H being placed well in from the edge, and the plates K being firmly riveted together at L L L L, there is enough friction in the joint to prevent the rule from folding up too easily, even when considerably worn, and the joint is much stronger than in the ordinary rule.

I am aware, of course, that double joints have been used for folding rules in place of the common single joints, but my joint requires few parts, which are simple and strong and leave the edge of the rule perfectly straight.

In the application of my joint to a folding rule or pole of considerable length I make use of virtually two complete rules arranged in lattice form, as shown in Fig. 5. For a ten-foot pole the legs may conveniently be a foot or two feet long, which will enable the rule to be folded up within comparatively small compass, so as to be kept in a tool-chest or carried conveniently. The corresponding legs of the two superposed rules are pivoted to

each other, respectively, at P P P, &c., as shown.

The various parts of my folding pole being constructed and arranged as described, its operation will be readily understood. When it is desired to unfold the pole for use, it is simply pulled apart, as shown in Fig. 5, or it will unfold itself on the principle of the lazy-tongs if the free extremities of the legs Q R are brought together. At length the pole will assume the form shown in Fig. 6, in which shape it is practically two simple folding poles of the length desired riveted together at the middle of each successive leg. When once opened in this form, the pole remains straight and rigid, with no tendency to double or fold up. Finally, the pole is graduated throughout its length with a scale of feet and inches, as indicated.

Having now described my invention, what I claim, and desire to have secured by Letters Patent, is—

1. A folding rule consisting of legs A, B, provided with quadrant-shaped recesses at their proximate ends as shown, said recesses terminating in stops C, D; a link E having the edge O straight, the edges M and N, sep-

arated by the projection F, arcs of circles of which the pivot-hole G is the center, the contour of its opposite half having the same relation to the pivot-hole H; plates K embracing each side of the link E and riveted to the legs; and pivots G, H, all substantially as shown and described.

2. In a folding measuring-rule, the combination of two series of oppositely-opening folding legs superposed on each other back to back and pivoted to each other at the middle point of each leg, the members of each set of legs being connected together at their proximate ends by a link member, pivoted to each of the legs respectively, the body of said link member being contained wholly within the legs when the rule is entirely unfolded and the exposed edge of said link member being made straight, to preserve the continuity of the line formed by the edge of the rule.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE R. WILLCOX.

Witnesses:

A. M. WEBB,
ORIN WARRINER.