

No. 884,255.

PATENTED APR. 7, 1908.

E. ZWEIFLER.
FOLDING RULE WITH SPRING JOINTS.

APPLICATION FILED SEPT. 16, 1907.

Fig.1.

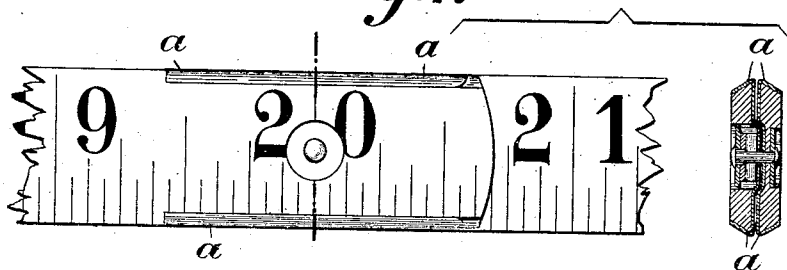


Fig.2.

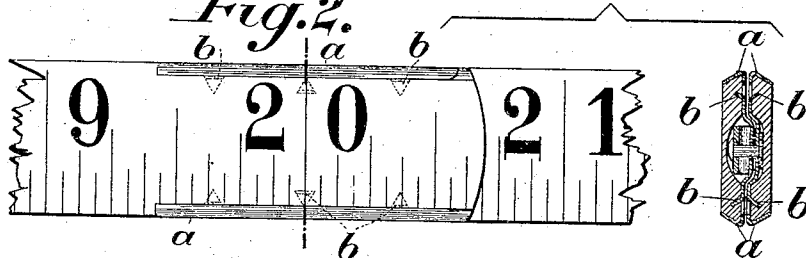


Fig.3.

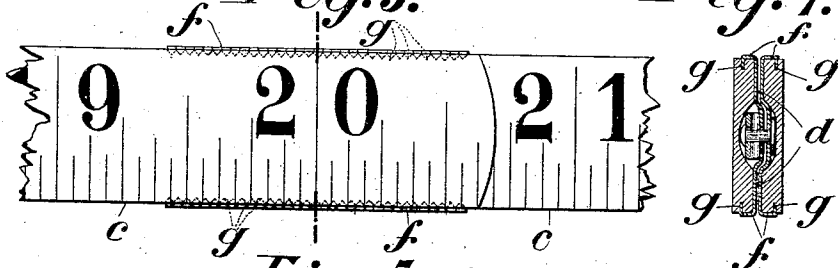


Fig.4.

Fig.5.

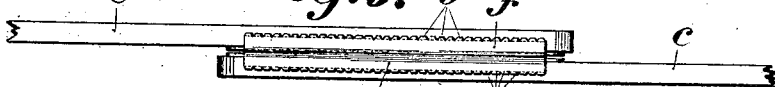


Fig.6.

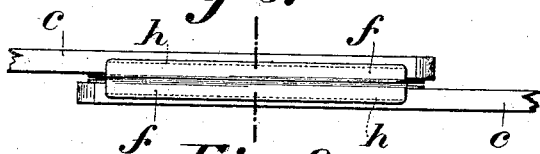


Fig.7.

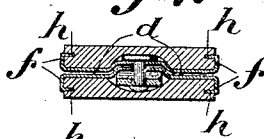
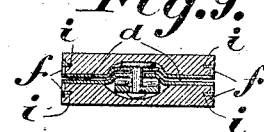


Fig.8.



Fig.9.



Witnesses:

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FOLDING RULE WITH SPRING-JOINTS.

No. 884,255.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDUARD ZWEIGLER, workmaster, a subject of the King of Saxony, residing at Eisenach, Grand Duchy of Saxe-Weimar-Eisenach, Germany, have invented certain new and useful Improvements in Folding Rules with Spring-Joints, of which the following is a specification.

In the case of the known folding rules with spring joints, having either visible pivots, as shown in Figure 1 of the drawing, or covered pivots as shown in Fig. 2, the lateral edges of the rule members at both sides of the visible or covered pivot are beveled or cut away, as shown at *a*, so that the division marks are interrupted and do not extend to the edges. This prevents the marking of accurate measurements with the respective parts of the rule, and the user is compelled to rely mainly on his own judgment when that part of the scale is required. In the case of these known folding rules with spring joints the beveling of the edges of the interconnected members is absolutely necessary to allow of dove-tailing the spring mounts on the members in order to give them a good hold and prevent relative displacement, abutments for the mounts being produced by the beveling or cutting away of the edges. To prevent withdrawal of the rule members from the mounts, lugs *b* or the like (Fig. 2) are punched out of the wider parts of the latter and are pressed into the wooden members by mechanical means. Absolute security against longitudinal displacement is not afforded by this arrangement, owing to the fact that the lugs are only formed on the wider parts of the mounts.

In order to obviate the disadvantage of an interrupted scale at the edges of the rule members with spring joint, the present invention provides that the lateral edges of the said members are not cut away or beveled at any part but have the same width throughout. The cost of manufacture is reduced by dispensing with the expensive operation of beveling or cutting away the edges. This construction, without beveled edges, can be adopted both in the case of spring joint folding rules with visible pivots, as shown in Fig. 1, and in the case of spring joint folding rules with covered pivots, as shown in Fig. 2.

The folding rule with spring joint provided by the present invention is therefore novel

and distinguished by the fact that the scale is visible in its entirety and not, as hitherto, interrupted by beveled edges provided for holding the mounts. For this purpose the mounts of the spring joints engage or penetrate the material of the rule members at the narrow sides of the latter. Figs. 3, 4 and 5 show, by way of example, a form of construction of a spring joint folding rule of this kind in plan view, cross-section and side view respectively. From these drawings it will be seen that the scale divisions extend at all parts to the edges *c* of the rule members and are not interrupted, and that relative longitudinal displacement of the pivotally connected members is nevertheless effectively prevented owing to the fact that the rectangularly bent or flanged edges *f* of the mounts *d* are provided along their entire length with teeth *g* which penetrate into the rule members.

As shown in Figs. 6 and 7, the same purpose can also be effected by bending inwards the longitudinal edges of the flanges *f* and pressing the ribs *h* thus formed into the lateral surfaces of the rule members. In order to prevent splitting of the wood, the said members may be previously provided with longitudinal grooves for the insertion of the edges *h*.

In the third form of construction shown in Figs. 8 and 9 the lugs *i* which engage the rule members are punched out of the rectangularly bent flanges *f* of the mounts *d*. These methods of fixing the mounts insure absolutely rigid connection of the same to the rule members, and also the exact alinement of the members relatively to each other, so that the members are fitted together with great accuracy. Relative longitudinal displacement of the members is effectively prevented, and also lateral displacement of the mounts, such as occurs if the beveling of the edges has not been carried out with sufficient accuracy. The result of the improved construction is to provide a rule of great strength which is not weakened at the part subjected to the greatest strain. In the case of the rules with spring joints shown in Figs. 1 and 2 a weakening of the wood is involved by the fact that the beveling of the edges at *a* is bounded by deep lateral incisions. In the improved rule the mounts *d* laterally engage the rule members by means of numerous small teeth, lugs or the like which provide

sufficient resistance to the lateral pressure applied during the folding and unfolding of the rule.

Claims:

5 1. A rule embodying foldable sections, and cooperating pivot plates for connecting the respective sections, the said plates being provided with flanges that cooperate with the longitudinal edges of the respective sections, and securing portions extending in-
10 wardly into the material composing the said edges of the sections.

2. A foldable rule embodying cooperating sections, and pivot plates for connecting the
15 sections, each plate being provided with oppositely arranged flanges bent to engage flatwise the longitudinal edges of the respective section, and securing devices on said flanges projecting into the material com-
20 posing the edges of the section in a plane parallel to the plane of movement of the sections.

3. A rule comprising foldable sections, and cooperating pivot plates, each of the latter being provided with a pair of lateral flanges
25 formed at the opposite longitudinal edges of the plate, and pointed securing devices formed integral with each flange, the securing devices on one flange being directed toward those on the opposite flange and engag-
30 ing the material composing the longitudinal edges of the section.

4. A rule comprising flat foldable sections, and cooperating pivot plates arranged on the respective sections, each plate having a
35 pair of parallel longitudinal flanges adapted to overlap and cooperate with the narrow longitudinal edges of its respective section,

and the edge of each flange being turned inwardly and embedded in the material at the narrow edge of each section. 40

5. A rule comprising flat foldable sections, and cooperating pivot plates for connecting the respective sections, each plate having a pair of oppositely arranged flanges which
45 overlap and cooperate with the corresponding longitudinal edges of its respective section, and the edge of each flange being turned inwardly in alinement with the edge of the flange at the opposite side of the respective
50 plate and provided with a row of sharpened projections which engage in the material at the narrow edge of the section.

6. A rule comprising flat foldable sections, and cooperating pivot plates for connecting the respective sections, each plate having a
55 body portion arranged on one of the flat sides of its respective section and provided with a pair of parallel flanges bent laterally at right angles to the body portion of the plate, the flanges being of a length less than
60 the thickness of the section, and having rows of sharpened projections which are turned inwardly in alinement with one another and in a plane parallel to the plane of the body of the plate, the said projections
65 being embedded in the material at the narrow edges of the section.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDUARD ZWEIGLER.

Witnesses:

EDWARD RAQUET,
PAUL MÄLZER.