Feb. 9, 1937. F. O. CARLSON 2,070,255

RULE

Filed March 18, 1935

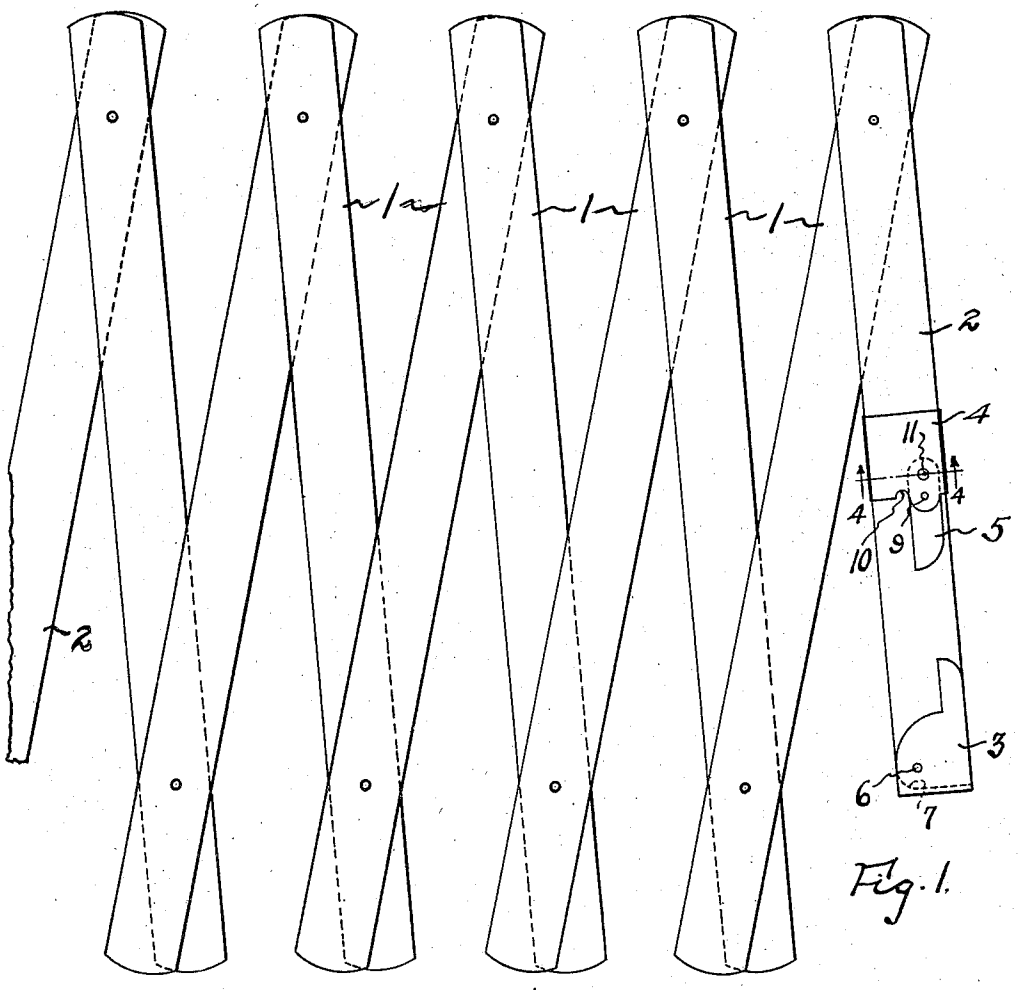


Fig. 1.

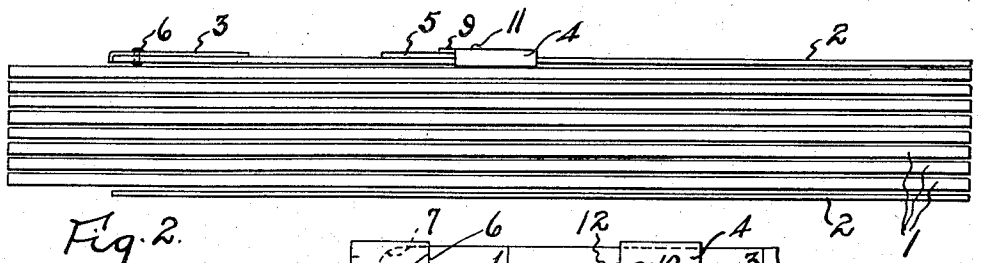


Fig. 2.

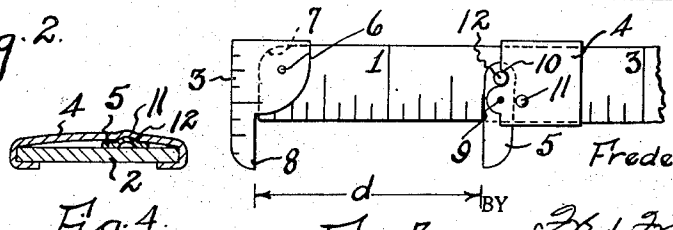


Fig. 4.

Fig. 3.

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RULE

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3 Claims. (Cl. 33—105)

This invention relates broadly to space measuring instruments of the ruler type and more particularly of the folding rule type.

One of the objects of this invention is to provide exceedingly simple attachments to be applied to a graduated rule to increase its field of usefulness by adapting it to calipering.

A further object of this invention is to provide graduated metal terminal sections for a folding rule to protect it against wear and abuse.

A still further object of this invention is to provide such a metal end section folding rule with simple attachments to adapt it to calipering.

These and other objects, as will appear from the following disclosure are secured by means of this invention.

This invention resides substantially in the combination, construction, arrangement and relative location of parts, all as will be described in detail below.

In the drawing,

Fig. 1 is a plan view of a folding rule in accordance with this invention with one section partly broken away, and showing the rule partly extended;

Fig. 2 is a side elevational view thereof showing the rule folded;

Fig. 3 is an enlarged plan view of a portion of one end section with the calipering attachments applied;

Fig. 4 is a cross sectional view taken on the line 4—4 of Fig. 1.

As illustrated in the drawing, the rule consists of a plurality of individual graduated sections 1, which are pivotally connected together to form an expansible rule which may be readily folded. In a general sense rules of this type are old and well known in the art in many forms, and for this reason the structure of the rule has not been shown in detail. Likewise the joints which pivotally connect the rule sections together are old and well known in many forms, and hence have only been shown diagrammatically.

The basic feature of this invention consists in the application of simple attachments to one of the end sections 2 of the rule to adapt it for calipering measurements. One of these attachments consists of the metal piece 3 pivotally mounted at 6 on the end of the end section so that it may be bent out to the position shown in Fig. 3. The other attachment consists of a metal slide 4 having channeled edges, as is clear from Fig. 4, so that it may be slidably mounted upon the end section 2. This slide carries a pivotally mounted arm 5 which may be swung to the position shown in Fig. 1 and moved out to the position shown in Fig. 3 for use in conjunction with the projecting end 8 of the pivoted attachment 3.

Folding rules of this type are commonly made of wood, molded compositions, and the like. The use of the slide 4 on the end section of a rule made of such materials would have a tendency to wear it unduly, causing the slide to ultimately slip, and marring the graduations which are usually stamped or painted thereon. These difficulties were solved in accordance with this invention by making the two end sections of a suitable metal such as steel, aluminum, and the like. Since the end sections of a folding rule are quite frequently used in taking short measurements, the construction of the end sections of metal is of distinct advantage in view of the greater accuracy with which they may be graduated, and the greater ease with which they may be used.

In addition the metal end sections resist wear of the slide, insuring it against slipping, and being graduated by directly marking the metal, these graduations are not worn off or obscured by repeated movements of the slide. A final advantage of the metal end sections on a folding rule having wooden sections is that the wooden sections are substantially metal encased, protecting them against wear incident to use and transportation. As is well known, the ordinary wooden section folding rule when carried about in the pocket or tool case of the user quickly wears at the ends, obscuring the graduations thereon and reducing its usefulness. By making the two outside or end sections 2 of metal the rule is substantially protected against wear, as will be apparent from Fig. 2.

Referring to the details, it will be seen that the corner 7 of the end section 2 which supports the calipering attachments is rounded so that the pivoted member 3 can be swung between the two positions as illustrated in Figs. 1 and 3.

The slide 4, which is preferably made of a strong metal, is transversely curved, as is clear from Fig. 4. It is so proportioned that its flanges grip the edges of the end section 2 and frequently hold it against movement. However, when pressure is applied to the slide to move it in either direction the outwardly bowed portion of the slide is pressed inwardly, causing the flanges to loosen their grip on the sides of the end section upon which they are mounted.

The slide then moves freely and as soon as

the pressure is removed it again grips the section to hold it in place. Pivotally connected at 9 on the slide is an arm or finger 5, which is provided with a small boss or projection 12 which cooperates with a properly positioned depression 11 in the slide body so as to lock the finger in the position shown in Fig. 1. To lock the finger in its extended position as shown in Fig. 3 the slide is notched at its edge at 10 so that the boss 12 will snap therein and hold the finger at right angles to the rule section. With the parts in the position as shown in Fig. 3 it will be readily apparent that calipering measurements can be easily taken either with the end section folded outwardly from the rest of the rule, or even when the rule is entirely closed. The active edge of the attachment 3 is in line with the end of the rule so that any distance *d*, representing the outside diameter of a shaft, for example, is directly read from the rule as will be apparent from Fig. 3 by noting the position of the finger 5 with respect to the graduations on the rule section. Thus the distance *d* is 1¾'' as illustrated in Fig. 3.

As an added convenience the attachment 3 is graduated along one edge so that short measurements can be taken on it in the position shown in Fig. 3. These graduations are standard so that when the attachment 3 is in the position in Fig. 1 the graduations thereon lie directly over the corresponding graduations of the first inch on the section 2.

From the above description it will be apparent that the objects of this invention are simply attained by means of a structure which may be illustrated by those skilled in the art without departure from the scope of the invention. I do not, therefore, desire to be strictly limited to the disclosure as given for purposes of illustration, but rather to the scope of the appended claims.

What I seek to secure by United States Letters Patent is:

1. A folding rule as described comprising a plurality of graduated strips of wood pivotally connected together at respective ends to form an articulated rule, and a pair of metal graduated terminal sections pivotally connected to the free ends of the wooden sections.

2. A rule as described comprising a plurality of graduated non-metallic sections connected together so as to be movable into the full rule length and closed into overlying sections, and a metal end section movably connected to one of the non-metallic sections to form a terminal section.

3. A folding rule as described comprising a plurality of graduated non-metallic sections pivotally connected together at respective ends, and a metal end section pivotally secured to one of the non-metallic end sections to form a terminal section.

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