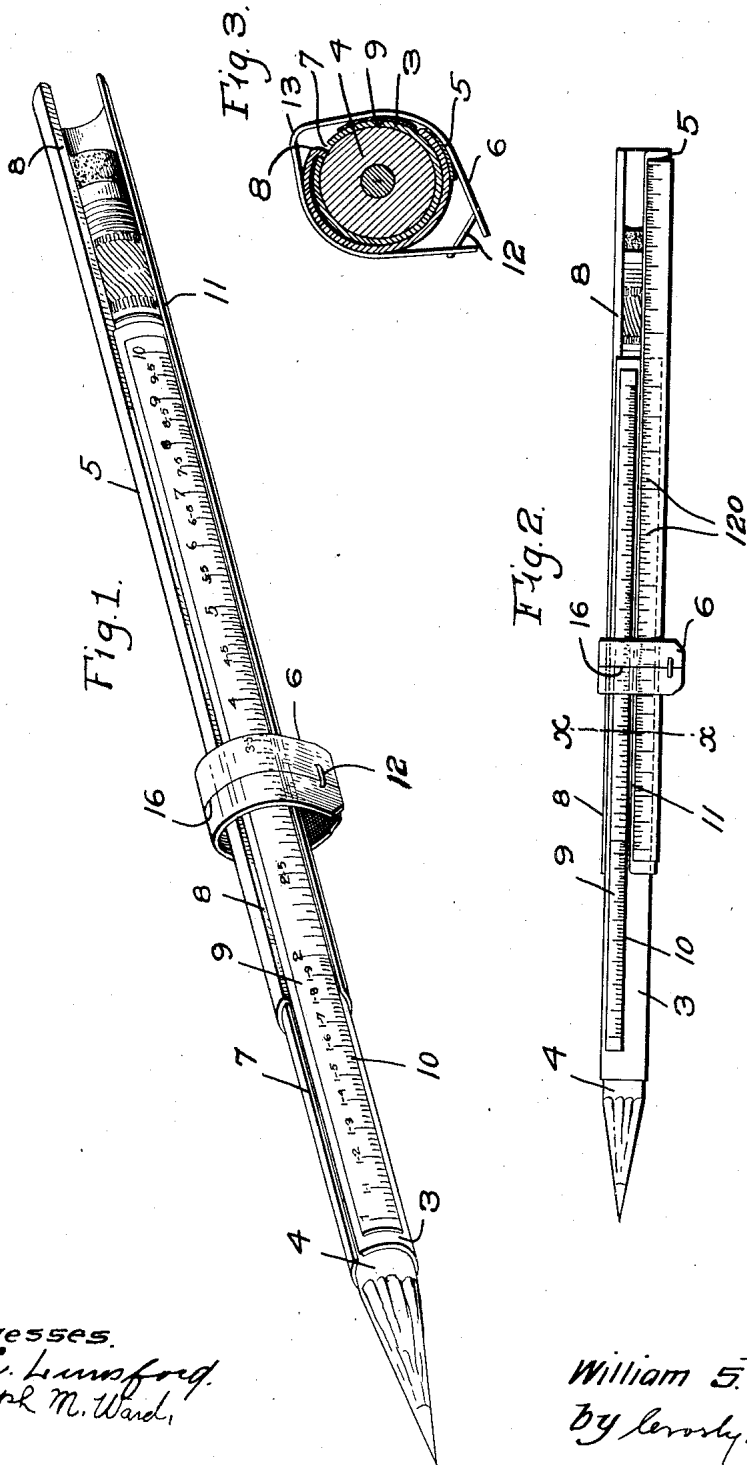


No. 883,800.

PATENTED APR. 7, 1908.

W. S. HARLOW.
CALCULATING RULE.
APPLICATION FILED OCT. 2, 1907.



Witnesses.
W. C. Lumsford.
Joseph M. Ward,

Inventor.
William S. Harlow.
by *Levy & Company* atty's.

UNITED STATES PATENT OFFICE.

WILLIAM S. HARLOW, OF SWAMPSCOTT, MASSACHUSETTS.

CALCULATING-RULE.

No. 883,800.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed October 2, 1907. Serial No. 395,500.

To all whom it may concern:

Be it known that I, WILLIAM S. HARLOW, a citizen of the United States, residing at Swampscott, county of Essex, and State of Massachusetts, have invented an Improvement in Calculating-Rules, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to a calculating rule and has for its special object to provide a novel form of calculating rule which is especially adapted to be used in connection with a pencil or pen.

In accordance with my invention, the calculating rule is made of such a shape that it can be easily slipped over a pencil or pen-holder and carried on the handle thereof so that when thus supported a combined pencil and calculating rule is produced.

So far as I am aware calculating rules are made as a separate instrument so that to use them when making calculations, it is necessary to lay down one's pencil, pen, or other writing implement, pick up the calculating rule and work out the desired calculation therefrom, then lay down the calculating rule and pick up the pencil and go on with the computation.

One advantage of my invention is that since the calculating rule is combined with a pencil, said rule can be used without the necessity of laying down the pencil, pen or other writing implement. Furthermore the combining of the calculating rule with the pencil eliminates the danger of mislaying the rule.

In order that the rule may be readily combined with a pencil, it is made with a tubular graduated member arranged to be slipped over the pencil and with a graduated slide carried by the tubular member and slidable thereon. With this construction the placing of the rule over the pencil does not materially increase its diameter nor render it awkward to use.

I will now proceed to describe one embodiment of my invention which I have chosen for the purpose of illustrating the principle thereof and will then point out the novel features of the invention in the appended claims.

Figure 1 in the drawings shows in perspective a pencil having my improved calculating rule applied thereto, said view showing the slide partly withdrawn as it would be in

making a calculation; Fig. 2 is a side view of a pencil having a calculating rule applied thereto; Fig. 3 is an enlarged section on the line $x-x$, Fig. 2.

The calculating rule comprises a tubular member 3 having an unobstructed interior bore of suitable size to receive a pencil 4 or pen-holder, a slide 5 embracing the tubular member and slidably mounted thereon, and an indicator 6.

The tubular member 3 is slotted throughout its length, as at 7, and is preferably made with an interior diameter very slightly less than the diameter of a pencil so that when the tubular member is slipped over the pencil it will be frictionally held in place thereon.

The slide 5 is made cylindrical in shape and is telescoped over the tubular member 3. Said slide is provided with the inturned guiding flange 8 which is received in the groove 7 and which operates to guide the slide 5 in its sliding movement. The said slide has an opening in its side extending the full length thereof but is shaped to present more than half of a cylinder, as plainly seen in Fig. 3, so that it cannot be removed laterally from the tubular member, but can only be slid longitudinally thereof. The portion 9 of the tubular member 3 which is exposed between the edges of the slide is provided with suitable graduations 10, and the edge 11 of the slide is provided with cooperating graduations 120. The character of these graduations may be varied according to the character of calculations it is desired to make with the rule, that is, said graduations may be of a character to permit of multiplication and division calculations to be made, or said graduations may be of such a nature as to permit any other calculations to be made which are commonly made by means of a calculating rule.

The index or indicator 6 is slidably mounted on the rule and may be of any suitable or usual character. For convenience I make it of a strip of transparent material, such as celluloid, which is folded about the rule and the ends of which are fastened together, as at 12, by any suitable fastening device. I prefer to give the indicator 6 approximately an elliptical shape, it being made with the comparatively sharp bend 13 opposite the fastening device 12. The advantage of this construction is that the resiliency of the material of said indicator will cause the sides of the latter to en-

gage the rule with sufficient friction to hold the indicator in any adjusted position, and the indicator can be readily adjusted by placing the thumb and the finger on the extremities of the longest axis thereof and pressing the portion 13 toward the fastening 12 thus causing the loop of the indicator to bulge slightly thereby relieving the frictional engagement between it and the rule. The indicator is provided, with the hair line or indicating mark 16 which is used in making the calculations.

When the rule is not in use the slide 5 is moved to the left Figs. 1 and 2, so that it occupies a position coinciding with the tubular member 3, and when in this position the rule as applied to the pencil occupies comparatively little space and does not interfere in any way with the use of the pencil or writing implement to which it is applied. When it is desired to make a calculation it is simply necessary to move the slide 5 longitudinally of the tubular member the required distance as determined by the particular calculation to be made and the particular type of graduation marks on the rule and then to shift the indicator to the proper point to give the result desired.

Since the principle of a calculating rule is well known to those skilled in the art and since my invention is not limited to a calculating rule having any particular type of graduation marks thereon or to one adapted to make any particular kind of calculation, I have not deemed it necessary to describe in detail the actual process performed in making any particular calculation.

One of the advantages of my improved construction is that it can be applied to any pencil, pen-holder or other writing implement without at all interfering with the ordinary use of such writing implement, and when thus applied it furnishes a person with a combined pencil and calculating rule.

While the particular embodiment of the

invention herein illustrated is the preferred embodiment, yet my invention is not limited to the particular construction shown.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A calculating rule comprising an open-ended slotted resilient tubular graduated member having an unobstructed bore of a size to fit over a pencil, a slide embracing and fitting said tubular member and slidable thereon, said slide having an open side through which the graduations on the tubular member are visible, and an indicator slidably embracing said slide and indicator.

2. A calculating rule comprising a pencil-receiving tubular slotted member, a slide embracing said tubular member and having at one edge an inturned flange received in the slot of said tubular member, the exposed portion of the tubular member having a scale thereon and one edge of the slide having a coöperating scale, and an indicator embracing the slide and tubular member and slidable thereon.

3. A calculating rule comprising a slotted tubular graduated member having an unobstructed interior to adapt said member to be slipped over a pencil and held thereon by the resiliency of said member, a slide entirely exterior to said member and embracing and fitting the latter and slidable thereon, one edge of said slide being situated adjacent the graduations on the tubular member, and the other edge of said slide being bent to form an inturned flange which plays in the slot of the tubular member.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM S. HARLOW.

Witnesses:

LOUIS C. SMITH,
MARGARET A. DUNN.