

(No Model.)

A. A. OLUND.
LINE DIVIDING SCALE.

No. 604,075.

Patented May 17, 1898.

Fig. 1.

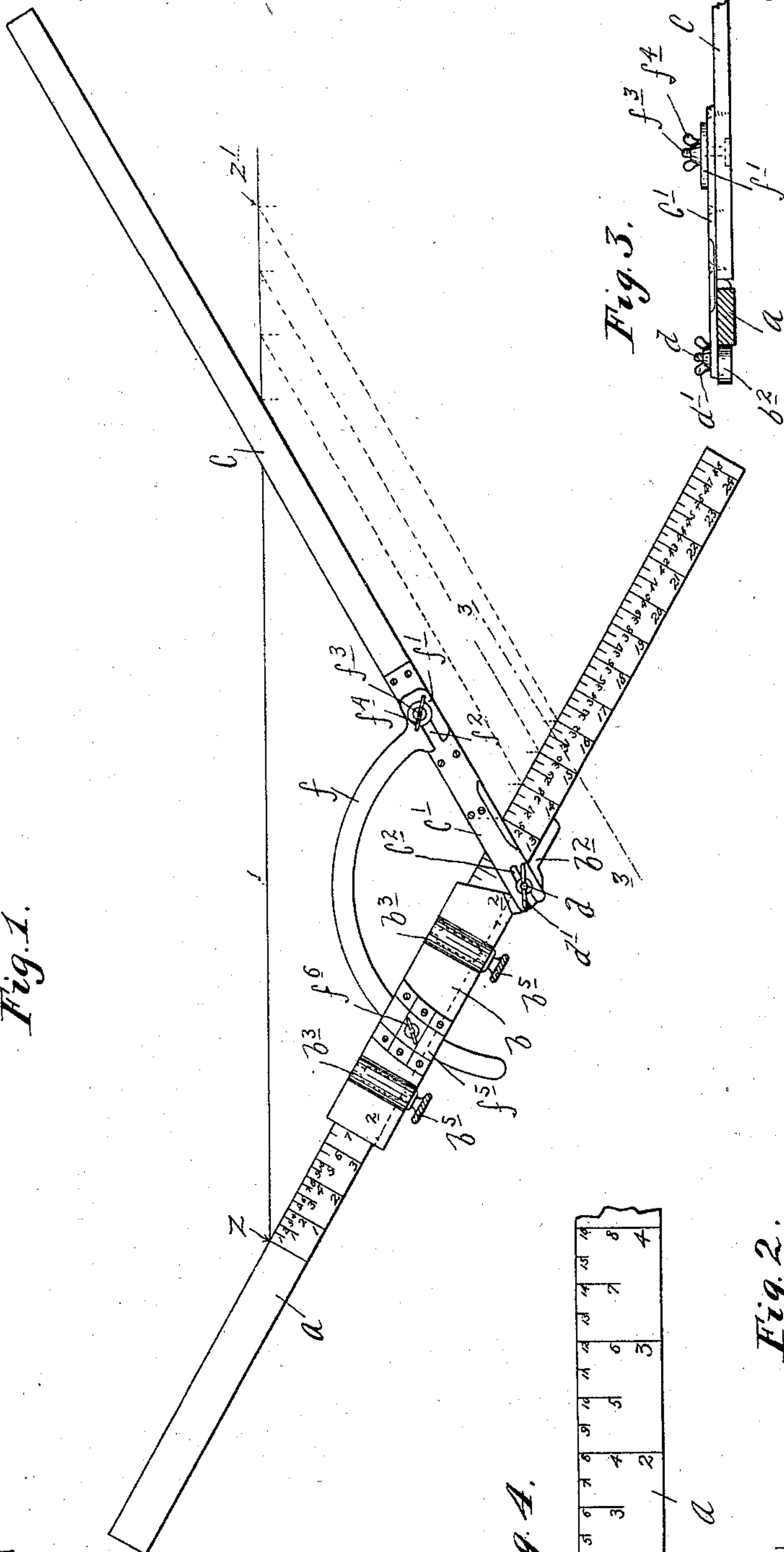


Fig. 3.

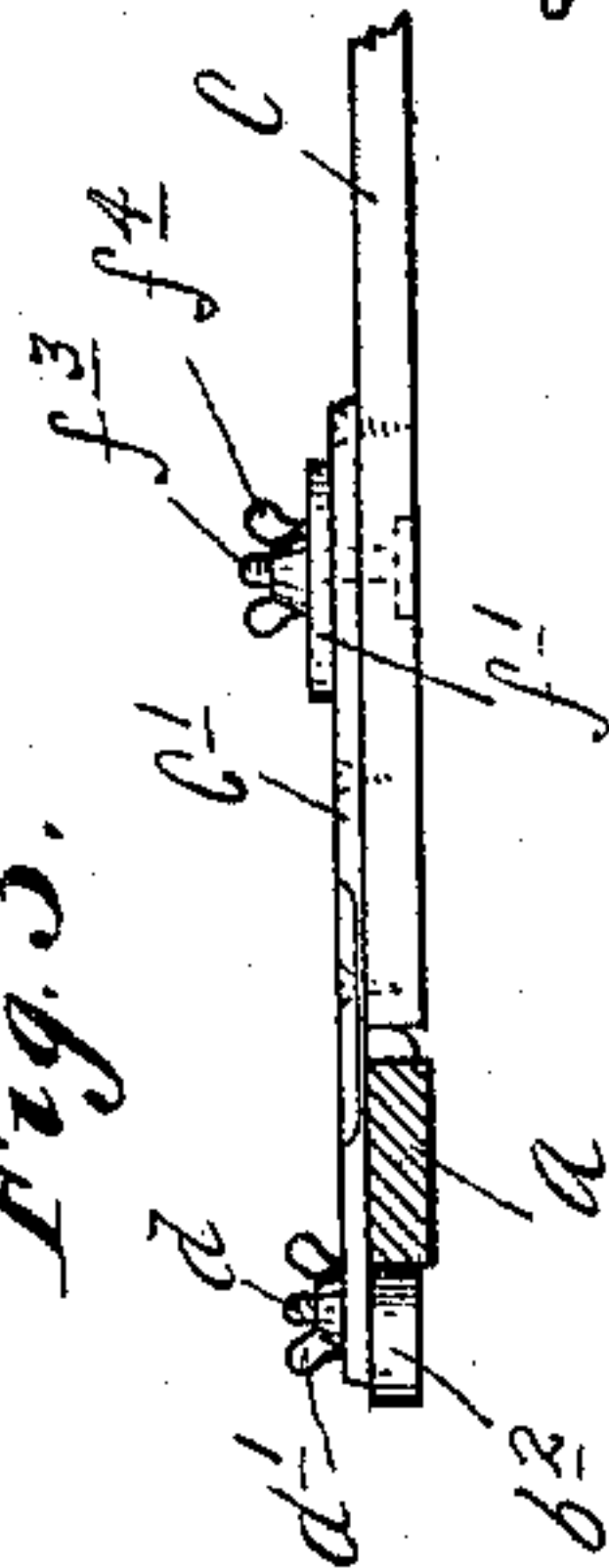


Fig. 2.

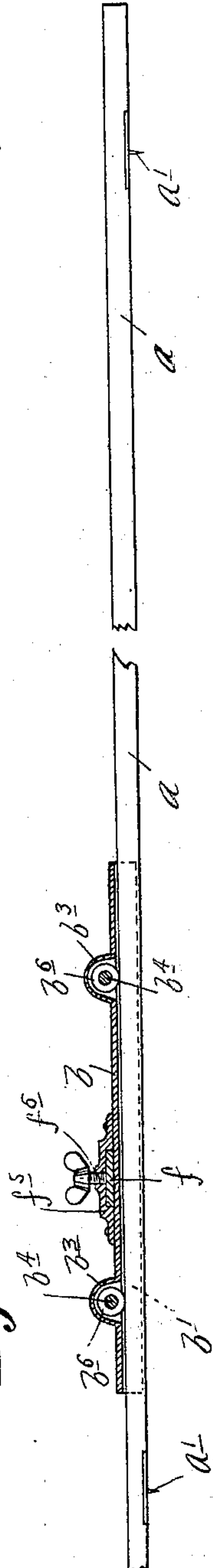
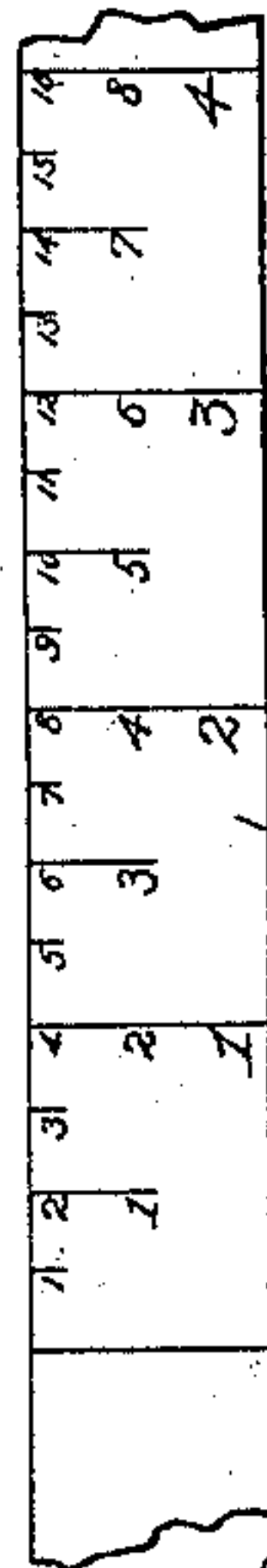


Fig. 4.



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UNITED STATES PATENT OFFICE.

AXEL A. OLUND, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF
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LINE-DIVIDING SCALE.

SPECIFICATION forming part of Letters Patent No. 604,075, dated May 17, 1898.

Application filed July 2, 1897. Serial No. 643,196. (No model.)

To all whom it may concern:

Be it known that I, AXEL A. OLUND, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Line-Dividing Scales; 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 has for its object to provide an improved device for dividing lines into equal parts or subdivisions, and it is in the nature of a dividing scale or rule.

To the ends above noted my invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The preferred form of my invention is illustrated in the accompanying drawings, wherein like letters indicate like parts throughout the several views.

Figure 1 is a plan view of my improved dividing scale or rule. Fig. 2 is a view showing the said dividing scale or rule principally in side elevation, but partly in vertical section, on the line 2 2 of Fig. 1. Fig. 3 is a transverse section taken on the line 3 3 of Fig. 1, some parts being broken away; and Fig. 4 is a plan view of a section of the so-called "base-rule."

My improved dividing scale or rule is made up of three principal parts, to wit: a base-rule *a*, a sliding head or block *b*, mounted for movement on said base-rule *a*, and a lining-rule or straight-edge *c*, projecting from and carried by said sliding head or block.

In my preferred construction illustrated the said parts are constructed and connected together as follows: The base-rule *a* is graduated to indicate the desired subdivisions. Preferably it is graduated in several series of markings—for example, in inches, half-inches, and quarter-inches—each series having its own consecutive markings or numerals, all of which different markings have a common or coincident zero-point. At this zero-point the base-rule is provided with a depending pin or brad *a'*.

The sliding head *b* is provided with parallel depending side flanges *b'*, which are adapted to embrace and closely fit the edges of the base-rule *a*. One end of one of the flanges *b'* projects forward and is slightly thickened to form a pivot-lug *b²*. A small pivot-bolt *d* is passed upward through the pivot-lug *b²* and is provided on its upper end with a thumb-nut *d'*. In suitable seats *b³*, which are formed by upward bulges extending transversely in the head or block *b*, are mounted loose rollers *b⁴*, the stems of which project from one side of said head or block *b* and are provided with knurled heads *b⁵*. The rollers *b⁴* are preferably provided with rubber faces or peripheries *b⁶*, which normally bear against the upper face of the base-rule *a* and hold the body of said sliding head or block *b* out of frictional engagement with the graduated face of said base-rule. By means of these traction-rollers *b⁴* *b⁶* and their knurled heads *b⁵* the head *b*, together with the parts carried thereby, may be given any desired amount of movement and may be very accurately set in the different desired positions. At the same time the traction-rollers prevent the characters or graduations of the base-rule from being worn off by frictional engagement with the parts that slide over the same.

To connect the lining-rule or straight-edge *c* to the sliding head *b*, it is provided with a thin metallic extension *c'*, which projects from the top face of the same in position to overlie the base-rule *a*, while said rule *c* extends in the same plane therewith, as best shown in Fig. 3. At its extended end the extension *c'* is provided with an open-ended slot *c²*, which is adapted to straddle the pivot-bolt *d*, which bolt *d* serves as a pivot around which the rule *c* is adapted to be pivotally adjusted. *f* indicates a segmental arm which is struck on the line of a circle having for its center the center of the pivot-bolt *d* and provided at one end with a head *f'*, formed with a slot *f²*.

f³ indicates a small bolt which is passed upward through the lining-rule *c* and extension-plate *c'*, with its head countersunk in said rule *c* and its upper end working through the slot *f²* of the head or enlargement *f'*. A

thumb-nut f^4 works on the upper end of the bolt f^3 . The free end of the segmental arm f works through a keeper or guide f^5 , secured on the sliding head or block b . A set-screw f^6 works through the top of the keeper f^5 and impinges on the segmental arm f to secure the same wherever set. When the set-screw f^6 and thumb-nuts d' and f^4 are tightened, the lining-rule c will be securely held against movement with respect to the sliding head or block b . Let it be assumed that the said parts are adjusted as above indicated and that it is desired to divide a line extending between the points z and z' into sixteen equal parts. To readily accomplish this, the pin or brad a' should be driven at one of the points, as z , for example, and then or before this time the head-piece should be adjusted so that the marking edge of the rule c will intersect the inner edge of the base-rule a at the "16" mark of the largest graduations. This having been done, the instrument is properly positioned for work by turning the same until the marking or lining edge of the rule c intercepts the point z' . The base-rule should be held in this position while the division of the line is being accomplished. To divide the line into the sixteen equal parts, the head b must be moved step by step through intervals of movement indicated by the coarsest or largest scale-marking, and at each step the point where the edge of the lining-rule c intersects the line $z z'$ must be marked. In Fig. 1 the sliding head and lining-rule c are shown as having been moved three steps or from "16" to "13."

It is of course obvious that the greater the angle between the line $z z'$ and the edge of the base-rule and the less the angle between said lines z and z' and the edge of the lining-rule c the greater will be each step of movement or distance indicated on the line $z z'$ for a given or determined step of movement indicated on the base-rule. By adjusting the lining-rule c so that the angle which it makes with the free end of the base-rule is decreased, the capacity of the instrument for dividing long lines is increased. It will be noted that in order to keep the inner end of said lining-rule c always in close contact with the edge of the base-rule a it is necessary to give said lining-rule a slight endwise movement when pivotally adjusted. The slot c^2 in the extension c' and the slot f^2 in the head f' of the arm f permit this adjustment.

If a certain line to be divided cannot be reached on account of its shortness by the larger markings of the scale or base-rule a , the smaller markings or graduations thereof must of course be used. By means of these different markings on the scale or base-rule a and by means of the adjustments of the

parts of the scale the instrument may be used throughout a very great range of work.

It is thought that I have provided an extremely simple and efficient device for the purposes had in view. It will of course be understood that various alterations in the specific details of construction above described may be made without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A dividing-scale, involving a graduated base-rule with depending pin or brad at the intersection of the zero-mark with the lining edge thereof, a head or block mounted for sliding movement on said base-rule, and a lining-rule projecting from and carried by said sliding head or block, substantially as described.

2. A dividing-scale, involving a graduated base-rule with a depending pin or brad at the intersection of the zero-mark with the lining edge thereof, a head or block mounted for sliding movement on said base-rule, and a lining-rule pivotally mounted on and carried by said sliding head or block, substantially as described.

3. A dividing-scale, involving a graduated base-rule, a head or block mounted for sliding movement on said base-rule and provided with one or more finger-operated traction-rollers working over the graduated face of said base-rule, and a lining-rule projecting from and carried by said sliding head, substantially as described.

4. A dividing-scale, involving a graduated base-rule, a head or block mounted for sliding movement on said base-rule and provided with a pair of rubber-faced finger-operated traction-rollers which engage the graduated face of said base-rule, and a lining-rule projecting from and carried by said sliding head or block, substantially as described.

5. A dividing-scale, involving the graduated base-rule a , with the depending pin or brad a' , the sliding head b provided with the side flanges b' , seats b^3 and extension b^2 , the finger-operated traction-rollers $b^4 b^5$ mounted in said seats b^3 , the lining-rule c with the extension c' having slots c^2 , the set-screw $d d'$ working in slot c^2 , the segmental arm f working through keeper f^5 on said head b and provided with the slotted head $f' f^2$, and the thumb-nut and bolt $f^3 f^4$ cooperating with the slotted head $f' f^2$, substantially as described.

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

AXEL A. OLUND.

Witnesses:

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