

J. H. GRANBERY.

STADIA ROD.

APPLICATION FILED SEPT. 10, 1908.

940,007.

Patented Nov. 16, 1909.

Fig. 1.

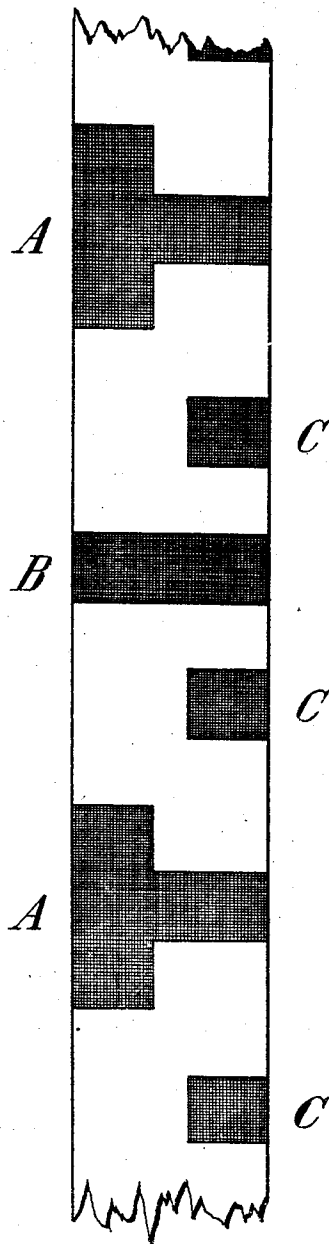
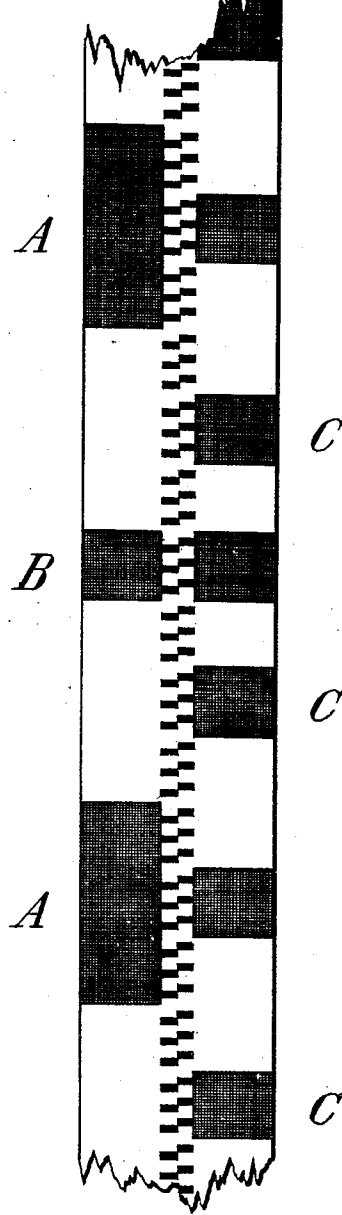


Fig. 2.



Witnesses

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STADIA-ROD.

940,007.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed September 10, 1908. Serial No. 452,413.

To all whom it may concern:

Be it known that I, JULIAN HASTINGS GRANBERY, a citizen of the United States, residing at No. 75 Hollywood avenue, East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Stadia-Rods, of which the following is a specification.

My invention relates to improvements in stadia rods in which a staff or rod is proportionately divided in such manner that, when viewed from a distance through the medium of a telescope fitted with stadia wires, the portion of the rod visible between the two wires is proportional (excepting the instrumental correction) to the distance between the telescope and the rod.

The object of my improvement is to provide a stadia rod having divisions of a legible and distinctive character in a form that is visible and readily understood at long distances. I attain this object by means of the forms and grouping shown on the accompanying drawing, in which—

Figure 1 represents the front surface of part of a stadia rod divided in the manner which I claim as my invention; Fig. 2 shows the corresponding portion of a similar rod, having divisions of the same character, and, in addition, a set of sub-divisions intended to show the method used for finer graduations.

Similar letters refer to similar parts.

The rod itself may be of wood, metal, or other suitable material, of such form and length as may be found convenient and practical in use. The divisions or graduations are formed by characteristic signs such as those indicated upon the drawing by the letters A, B, and C, respectively; each of these signs is so formed and placed that each of its horizontal edges is one tenth of one unit distant from the next neighboring horizontal edges of that and of the adjacent sign or character.

Characters or signs such as those marked A and B are repeated at intervals of one unit, the two characters being one half of one unit apart on centers; that marked C is repeated between adjacent characters A and between adjacent characters B; the function of the characters being as follows: The characters A or B indicate the unit point, or zero, of the reading by one of the horizontal edges of the character; the horizontal edges of this, and of the other characters

taken in conjunction with it, indicate the divisions of tenths of one unit, according to the number of horizontal edges intervening between the two wires of the telescope when the rod is read by its means; each horizontal edge, being one tenth of one unit distant from the next preceding or subsequent horizontal edge. The different signs or characters are designed for convenience and facility in use, the characters A and B indicating units and half units according to the form of the sign or character from which the zero of the reading is taken, and the characters C marking intermediate tenths.

The drawing is intended to show the general form but not necessarily the precise form of the characters or signs used.

The characters A, B and C I term "division-characters", to distinguish them from the "subdivision-characters" referred to hereinafter. The division-characters divide the units into tenths; the subdivision-characters divide the tenths in tenths, that is, hundredths of a unit. In the claims I refer to characters embodying the principle of character A as "major division-characters" and characters on the order of characters B and C as "minor division-characters"; and in practice it will be customary for characters such as A mark the units, and the characters B half-units; but it will be understood that this particular application of the characters is not obligatory.

It will be seen that the character A consists of a smaller rectangle, a certain constant fraction of one unit in vertical width, as one-tenth, and a larger rectangle having a vertical width three times as great and disposed with its middle third horizontally opposite the smaller rectangle. Thus, the distance between successive horizontal edges of the character is always the same fraction of one unit.

While it is preferred that the rectangles of which the character A is composed be arranged so that the character has the appearance of a horizontal distorted block letter T, this need not be the case in all instances, the essence being that the character have a horizontal rectangular stem and two rectangular projections at opposite sides thereof. Such a character I regard as one of the novel features of the invention.

The characters B and C are in the form of simple rectangles, each having a vertical width equal to one-tenth of one unit, or other

constant fraction thereof. The characters B extend horizontally over a major portion of the width of the rod, and the characters C over a lesser portion of such width; and it will be seen that in any group or sequence of these minor division-characters the characters of lesser length alternate with the characters of major length. Customarily, as shown, a character, as B, of major length, is placed between two characters, as C, of lesser length. Such an arrangement I regard as another feature of novelty of the invention.

To illustrate the use of the invention, let it be supposed that the upper horizontal edge of the stem of one of the characters A indicates zero, then to the upper edge of the upper rectangular projection of said character is one-tenth, thence to the lower horizontal edge of the character C next above is two-tenths, to the upper horizontal edge of this character three-tenths, and so on. But it must be understood that I am not necessarily restricted to the special sequence of characters shown.

In Fig. 2 I have shown portions of the division-characters A, B and C suppressed to accommodate a vertical series of small subdivision-characters whose horizontal edges indicates hundredths. It will be understood that the characters A, B and C of the two views are in effect the same, the suppression of a portion of the characters as shown in Fig. 2 not altering the essential nature thereof as already described.

It will be readily seen by those skilled in the art that the rectangles composing the characters of rods graduated according to my invention, being of solid black or other color contrasting with the ground of the scale, will be easily distinguishable at long distances.

I claim—

1. A stadia rod having in its graduation major division-characters each consisting of a smaller rectangle a constant fraction of one unit in vertical width and a larger rectangle having a vertical width three times as great and disposed with its middle third horizontally opposite the smaller rectangle, whereby the vertical distance between successive horizontal edges of the character is a constant fraction of one unit.

2. A stadia or leveling rod having in combination with major division-characters, minor division-characters consisting of rectangles one-tenth, or other constant fraction, of one unit in vertical width, certain of said minor division-characters extending a major portion of the horizontal distance across the rod and certain others a minor portion of such distance, as the major or minor importance of the division indicated requires; in each sequence of minor division-characters the characters of major and minor

length being alternated; individual rectangles being invariably separated by spaces having the same vertical width as the rectangles.

3. A stadia rod having in its graduation major division-characters each consisting of a smaller rectangle a constant fraction of one unit in vertical width and a larger rectangle having a vertical width three times as great and disposed with its middle third horizontally opposite the smaller rectangle, and minor division-characters arranged between said major division-characters, being in the form of rectangles of the same vertical width as said smaller rectangles of the major division-characters, the vertical distance between the nearest horizontal edges of next-neighboring characters also being the same constant fraction of one unit.

4. A stadia rod having in its graduation major division-characters each consisting of a smaller rectangle a constant fraction of one unit in vertical width and a larger rectangle having a vertical width three times as great and disposed with its middle third horizontally opposite the smaller rectangle, and minor division-characters arranged between said major division-characters, being in the form of rectangles of the same vertical width as said smaller rectangles of the major division-characters, certain of the minor division-characters between nearest major division-characters extending across a major portion of the width of the rod and certain thereof across a lesser portion of the width of the rod, the vertical distance between the nearest horizontal edges of next-neighboring characters also being the same constant fraction of one unit.

5. A stadia rod having in its graduation major division-characters each consisting of a smaller rectangle a constant fraction of one unit in vertical width and a larger rectangle having a vertical width three times as great and disposed with its middle third horizontally opposite the smaller rectangle, two minor division-characters arranged between nearest major division-characters, being in the form of rectangles of the same vertical width as the smaller rectangles of said major division-characters and extending horizontally across a minor portion of the width of the rod, and another minor division-character between said two minor division-characters, similar thereto but extending across a major portion of the width of the rod, the vertical distance between the nearest horizontal edges of next-neighboring characters also being the same constant fraction of one unit.

6. A stadia rod having in combination with major division-characters, minor division-characters consisting of rectangles one-tenth, or other constant fraction, of one unit in vertical width, certain of said minor-

division characters extending a major portion of the horizontal distance across the rod and certain others a minor portion of such distance, as the major or minor importance of the division indicated requires; in each sequence of minor division-characters the characters of major and minor horizontal length being alternated, and individual rectangles being invariably separated by spaces having the same vertical width as the rectangles; together with a vertical series of small subdivision-characters.

JULIAN HASTINGS GRANBERY.

Witnesses:

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