No. 880,796. PATENTED MAR. 3, 1908.

W. E. HORROCKS.

DRAFTING INSTRUMENT.

APPLICATION FILED JUNE 13, 1907.

2 SHEETS—SHEET 1.

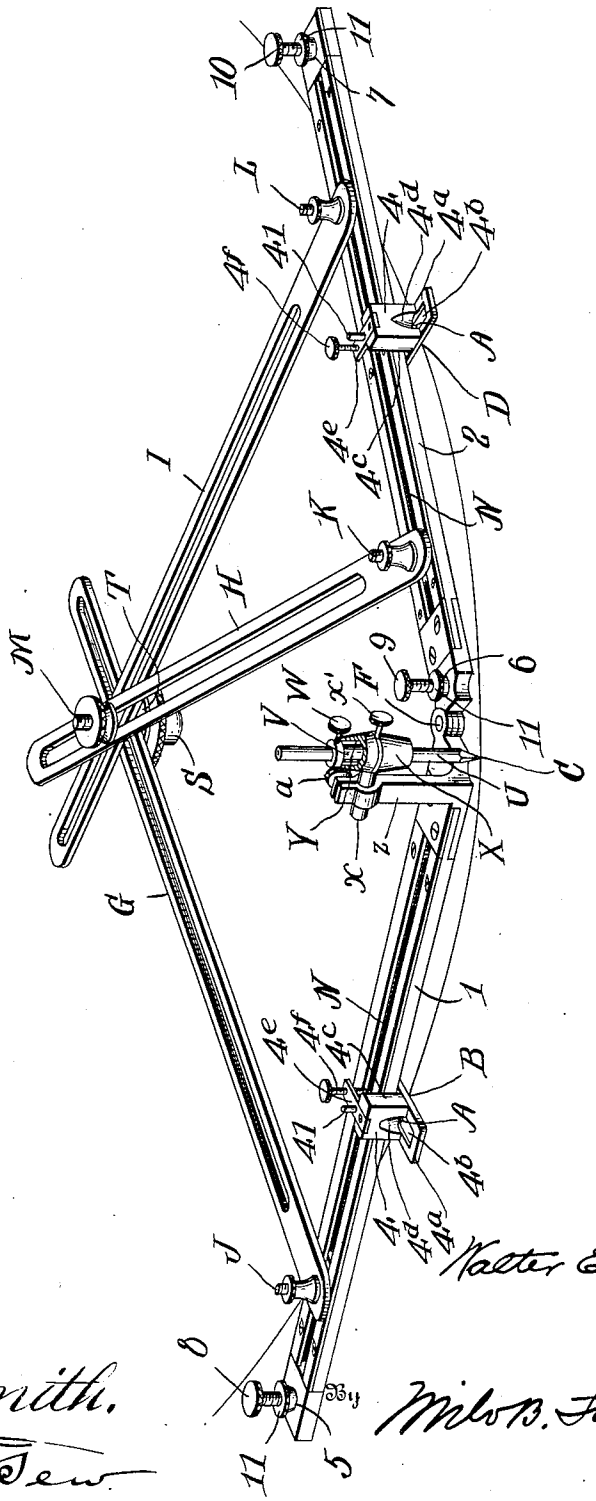


Fig. 1.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

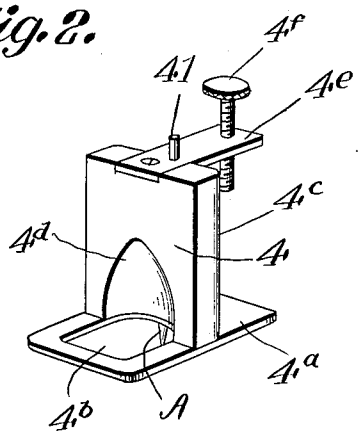


Fig. 3.

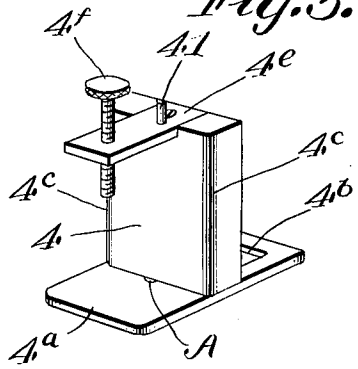


Fig. 4.

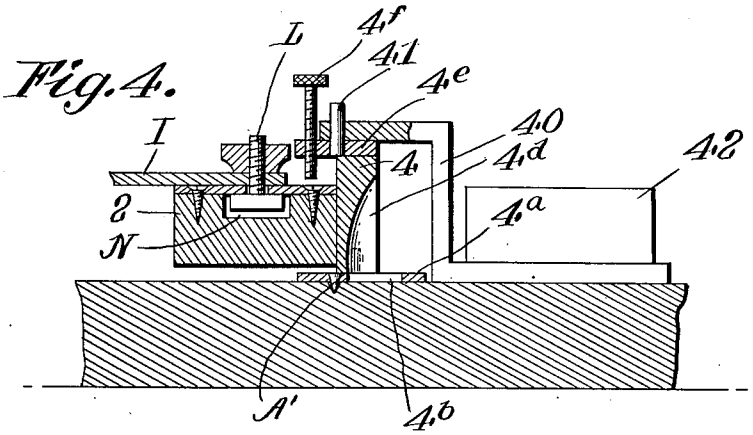


Fig. 5.

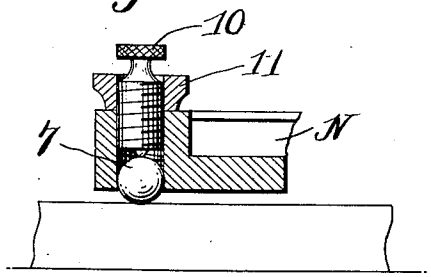


Fig. 7.

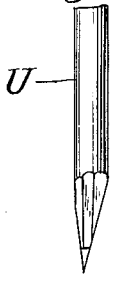
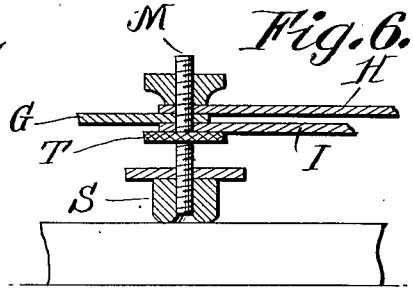


Fig. 6.



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DRAFTING INSTRUMENT.

No. 880,796. Specification of Letters Patent. Patented March 3, 1908.

Application filed June 13, 1907. Serial No. 378,785.

To all whom it may concern:

Be it known that I, WALTER EDWARD HORROCKS, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Drafting Instruments, of which the following is a specification.

This invention is a curve scriber, and has for its object to draw large circles or arcs, especially where it is impossible to draw a circle with a compass or beam because of lack of room to locate the center.

With the present instrument it is not necessary to have a center point to draw a circle, and it is also immaterial how large the circle is.

The instrument is characterized by improvements in construction and method of operation as will be more fully apparent from the following description.

In the drawings, Figure 1 is a perspective view of the instrument. Figs. 2 and 3 are front and rear perspective views of a point holder used with the instrument. Fig. 4 is a sectional view of a modification adapted for work on metal. Figs. 5 and 6 are details in section. Fig. 7 is a side view of a pencil used with the device.

Referring specifically to the drawings, 1 and 2 indicate two bars or straight-edges hinged together at F, said hinge allowing the straight-edges to be adjusted to any angle with respect to each other. The straight-edges are connected to and firmly held at any angle by means of slotted braces G, H and I. These are fastened to the respective straight-edges by bolts J, K and L, the heads of which are square and are slidable in undercut grooves N formed in the top of the straight-edges, as shown in Fig. 4. The square heads prevent the bolts from turning. The braces are connected together at their inner ends by means of a bolt M which passes through the slots in the braces. The bolt has a foot S and a table T, on which table the braces are clamped by the nut on the bolt.

U indicates a pencil which is held in a tube or bushing V by a set screw W. The bushing is slidable up and down in a tubular holder X, and is prevented from turning in the holder by a rib Y which fits in a groove in the holder. The holder has a lateral arm or rod x held in a split standard Z by the clamping screw a; and the holder can be adjusted to any desired position with respect to the standard and the instrument.

The fixed points A are carried by holders 4, said holders consisting of a block with a base 4^a having an opening 4^b therein. The block has round corners as indicated at 4^c, and the straight-edges slide against the face and corners of the block. The base plate 4^a is secured to the block and can be removed to put in a new point when desired, and said point is so fixed that it is flush or in line with the face of the block 4. The back of the block is recessed as at 4^d, so that the needle point can be seen from the rear or outer side. At the top the block has an overhanging plate 4^e which projects over the straight-edge and is provided with a set screw 4^f which can be screwed down to clamp the straight-edge upon the base 4^a, to fasten the block and straight-edge together.

The instrument moves over the drawing board or surface on three ball bearings indicated at 5, 6 and 7, a section of one of which is shown in Fig. 5, and the foot S. The ball bearings project below the bottom of the straight-edge and can be adjusted by set screws 8, 9 and 10 to raise or lower the straight-edges from or to the board. The screws are provided with lock nuts 11.

To use the instrument, assuming that a circle or arc is to be drawn through the points B, C and D, the instrument is laid flat on the paper, and the straight-edges 1 and 2 are adjusted to make an angle between said points. The braces G, H and I are then adjusted and set to hold the straight-edges at said angle. The pencil U is then placed in the bushing V and fixed by the set screw W, and said bushing placed in the holder X which is adjusted and set so that the pencil point will register with the point B. The instrument is then drawn away from the points and the ball bearings adjusted by screwing down the set screws 8, 9 and 10, until the straight-edges are raised from the board to pass clear of the bases 4^a of the point holders. Next adjust the foot rest S to level the braces with the straight-edges. One of the holders 4 is then taken and its point stuck into the drawing board at the point D and the other at the point C, and then turned slightly back and forth so that they will turn easily. Then the instrument is brought up with the straight-edges against the faces of the holders 4. The instrument

is then ready to describe an arc, by keeping the straight-edges pressed against the holders and moving the same laterally, at the same time pressing down on the pencil.

To draw additional segments or to complete the circle the pencil point is placed anywhere on the line just drawn and the screws 4^b are screwed down to clamp the holders on the straight-edges. The points are then drawn out of the drawing board and the complete instrument lifted and advanced along the arc just drawn until two points rest on said arc and the other point extends beyond the same. The clamps 4^f are then unscrewed and the instrument moved along to draw an additional arc. And so on until the desired segment or circle is completed.

Instead of a pencil a drafting pen may be placed in the holder and held by a set screw x'.

For use on metal or other hard surface a short point A is substituted, as shown in Fig. 4 and placed in a prick mark in the metal and the holder is steadied by a bracket 40 the arm of which is set over a pivot pin 41 in the top of the holder 4 and the base of which is weighted by a weight 42. The pin 41 is concentric with the point A, and consequently the holder can turn on said pin and point as an axis as the straight-edge is moved along the same.

Mounting the instrument on ball bearings permits it to move free and easily over the work, said ball bearings being nevertheless adjustable, as shown, to allow the instrument to be set right before the line is drawn. The foot rest and braces balance the instrument and prevent it from slipping or bending at the hinge joints. The adjustment provided for the pencil holder allows it to be readily centered.

The pencil shown in Fig. 7 has an eccentric point so that it can be turned to easily and exactly adjust the same to the point or line on the board, and when the pencil is set in the bushing V said bushing and pencil can be taken out of the holder X and returned to the same position, as the ribs Y must enter the grooves in the holder. Dotted lines may be made by moving the bushing up and down, the ribs sliding in the grooves.

I claim:

1. The combination with two hinged straight-edges, of point-holders each of which comprises a block across which the straight-edges are slidable, said block having a depending point and also having a clamp adapted to fasten the same to the straight-edge.

2. The combination with hinged straight-edges and a marking device carried thereby, of rollers upon which said parts are mounted, the rollers being adjustable to raise or lower said parts.

3. The combination with hinged straight-edges and a marker carried thereby, of point holders each of which comprises a block having a depending point, the face of the block being in line with the point, and also having an opening in the back of the block, through which the point may be seen.

4. The combination with hinged straight-edges and a marker carried thereby, of point-blocks across which the straight edges are slidable, and brackets pivotally connected to said blocks.

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

WALTER EDWARD HORROCKS.

Witnesses:
JOHN A. BOMMHARDT,
F. M. TAGGETT.