

BEST AVAILABLE COPY

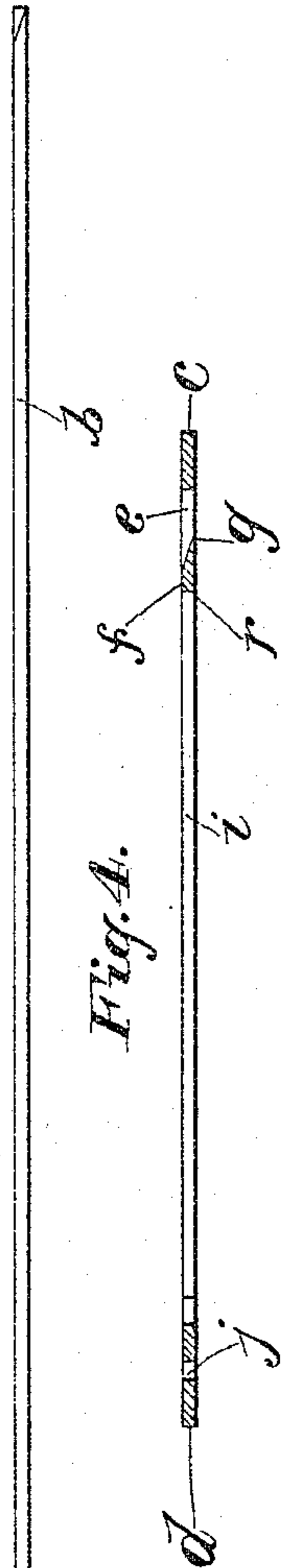
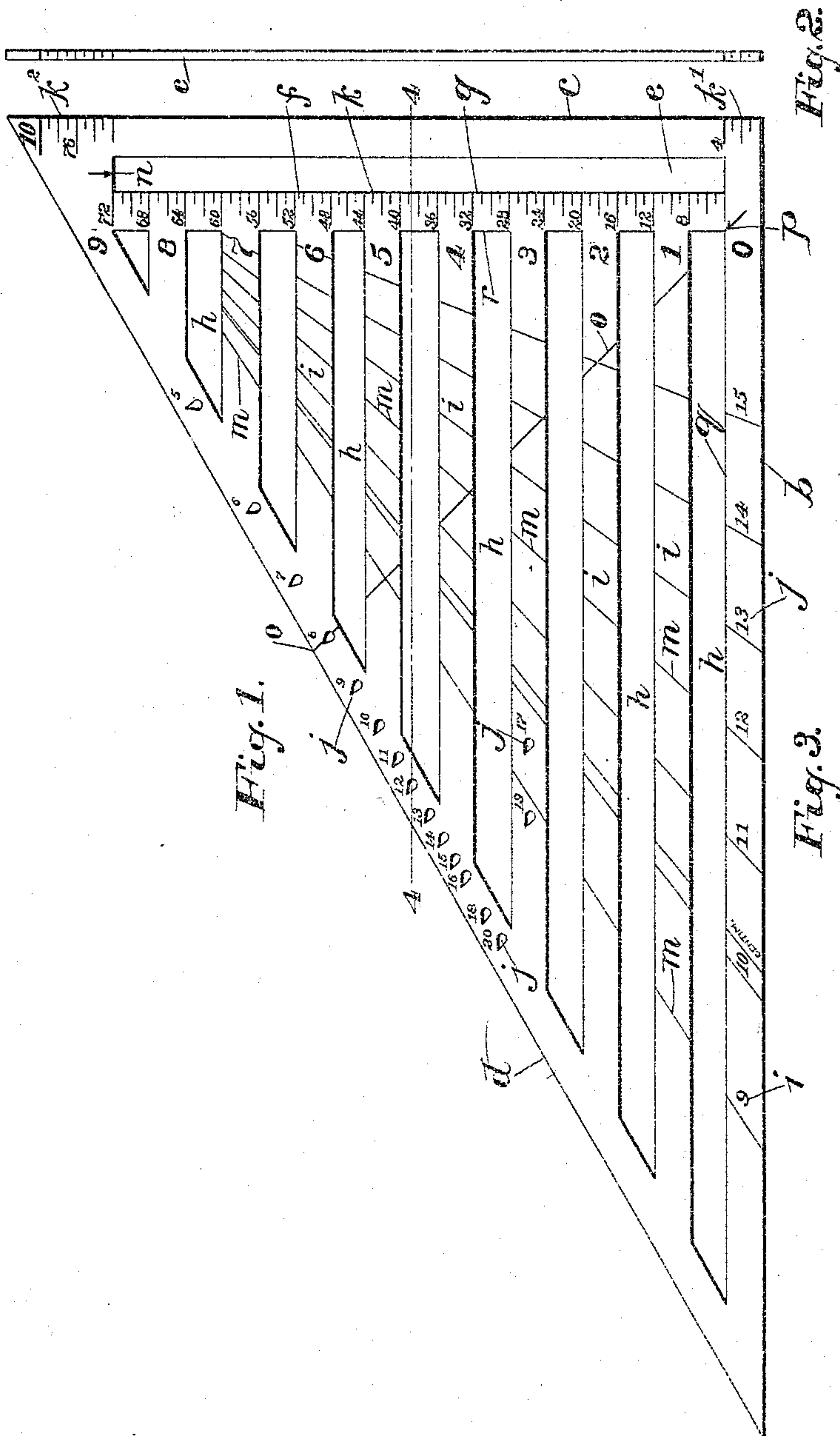
L. J. HEATHCOTE.

DRAFTSMAN'S TOOL.

APPLICATION FILED OCT. 19, 1914.

1,155,059.

Patented Sept. 28, 1915.



Witnesses

Porter H. Filault.

Bertha K. Walter.

331

Levin J. Heathcote

Mann & Co.

Attorneys.



BEST AVAILABLE COPY

# UNITED STATES PATENT OFFICE.

LEWIN J. HEATHCOTE, OF BALTIMORE, MARYLAND.

## DRAFTSMAN'S TOOL.

1,155,059.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed October 19, 1914. Serial No. 867,311.

*To all whom it may concern:*

Be it known that I, LEWIN J. HEATHCOTE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Draftsman's Tools, of which the following is a specification.

This invention relates to an improved construction of draftsman's triangle or tool and has for its object to provide an improved construction of tool of this character whereby to facilitate the division of straight lines, circles, or angles into a desired number of equal parts, also by which a single scale thereon may be utilized to effect the functions of a number of scales and which may also be utilized to locate the center of a circle.

The invention is illustrated in the accompanying drawing, wherein,—

Figure 1, shows the improved construction of triangle in flat face view. Fig. 2, illustrates one edge view of the same. Fig. 3, shows another edge view of the tool, and Fig. 4, illustrates a cross-sectional detail through the tool as viewed on the line 4—4 of Fig. 1.

Referring to the drawing the triangle or tool has two right angle bars *b*, and *c*, and a bar *d*, connecting the two right angle bars. A slot *e*, is provided in the tool adjacent to and parallel with the bar *c*, and a bar *f*, is thereby formed which extends at a right angle to the said bar *b*. This bar *f*, has a beveled edge *g*, along the slot for a purpose that will presently be explained. A series of slots *h*, and bars *i*, are provided in the tool which slots and bars extend in a direction parallel with the bar *b*, and therefore at right angles to the bar *f*, and slot *e*. The slots *h*, and the bars *i*, formed by the slots, are of uniform width,—the width of a slot being of the same dimension as the width of a bar. It will also be noted that the tool is provided with a series or plurality of perforations *j*, adjacent to each of which there is a numeral,—most of which perforations in the present instance are located in the bar *d*. The purpose of these numbered perforations will also be presently explained. A graduated scale *k*, is provided along bar *f*, adjacent to the beveled edge, the beginning *k*<sup>1</sup>, of which scale is located at one end of bar *c*, while a continuation *k*<sup>2</sup>, of the scale is located at the opposite end of said

bar. The bar *b*, is also provided with a consecutive series of spaced-apart numerals *j*, which in the present instance run from 9 to 15 inclusive and from each numeral there is a line *m*, extending in an inclined direction and crossing each bar *i*, all of these inclined lines lead to a common point at *n*, which is located at one end of slot *e*. A line *o*, extends on an angle of 45 degrees across the bars *i*, from a point *p*, in the corner of the lowermost slot *n*, which line is useful in locating a center point of a circle, as will presently be explained. In the present instance the bars *i*, are numbered in consecutive order from 0 to 9 and the numeral 10, is located at the apex of the angle formed by the bars *c*, and *d*.

Having described the structural features of the tool, several examples of its practical operation will now be given. Suppose it be desired to divide a circle whose center is known, into an equal number of parts,—say nine parts, merely as an example. The tool is laid on the circle with the point *p*, at the center of the circle. A line is then drawn from the point *p*, along the edge *g*, of bar *b*, thus intersecting the circle at the point where the division of the circle is to begin. Without moving the tool, note the perforation *j*, that is adjacent to the numeral 9, on bar *d*, and place a pencil point in the perforation at 9, which is the number of parts into which it is desired to divide the circle, and make a dot on the paper on which the circle is drawn. Remove the tool, and then draw a line from the dot on the paper to the center of the circle, such line crossing the circle. The distance between the line last made at the point where it crosses the circle and the point of intersection of the line first drawn from the center of the circle through the circle line, will be equal to one-ninth part of the circumference of the circle. Having found one-ninth part of the circle circumference, the remaining parts can be readily laid off with dividers.

If it be desired to locate the center of a circle, the tool will be laid with edges *g*, and *n*, tangent to the circle. While thus holding the tool with respect to the circle a dot should be made on the paper at point *p*, and another dot be made on said paper at the bar *d*, where line *o*, crosses the same. Then remove the tool and draw a line diametrically through the circle from one dot to the



other. Repeat the operation in another position on the circle and where the two diametric lines through the circle cross will be the center of the circle.

5 Another example of the utility of the tool will be given in a case where it is desired to divide a line of either an odd or an even number of units into any number of equal parts. As a mere example, suppose a line,  
10 of say between three and four inches long, is to be divided into five equal parts. While the tool may be operated in several ways to effect the result here referred to, the simplest method is to lay the tool on the line to be divided with the top edge of bar 5, in register with one end of the line and at the same time make the top edge of bar 6, register with the other end of the line, and it will be found upon marking the line at the  
20 points where the top edge of each bar *i* crosses the line, to be divided; that such marked points will divide that line into five equal parts. Obviously, instead of using the top edges of the several bars *i*, the lower  
25 edges can be used with the same result but all top edges or all lower edges should be used in making any one division. If, on the other hand, it is desired to divide a line into a number of parts greater than the number  
30 of bars on the tool, for example, say twenty parts, the tool may be so manipulated as to effect the result. In such a case the scale *k*, on bar *f*, will be used by first noting on the scale the first and last line of twenty consecutive lines. If the first line selected for  
35 example, be the line on which the numeral 40 appears, the twentieth line will be that on which the numeral 60 appears. Then lay the tool on the line to be divided with  
40 the scale line 40, in register with one end of the line to be divided, and place a straight-edge, like the flat side of another angle, along the under edge of lowermost bar *b*, so the tool may be moved in a line that will  
45 cause the scale lines *k*, to cross the line to be divided. This angle of the scale edge *g*, with respect to the line to be divided, can be readily determined in several back and forward movements of the tool on the  
50 straight edge, and when said tool can be moved back and forth on the straight edge so as to bring first scale line 40 at one end of the line that is to be divided, and then scale line 60 at the other end of the line to be divided, the setting of the tool will be  
55 correct to lay off the twenty parts. By then moving the tool on the straight edge until line 41, of the scale intersects the line to be divided, the first of the twenty parts will be determined, and a dot or pin point will be made at that intersection. The tool will then be moved intermittently to bring scale lines 42, 43, 44 and so on consecutively across  
60 the line to be divided, a dot or mark being made at each intersection, and when scale

line 60 crosses the end of the line it will be found that the latter will have been divided into twenty parts.

As one other example let it be presumed that it is desired to divide a line one inch  
70 long into a number of parts, say for example, twelve parts. The tool will be laid on the one-inch line that is to be divided with the line *m*, on the tool leading from numeral 12, on bar *b*, extending in a direction paral-  
75 lel with said inch line. In doing this the scale bar *f*, will assume a position at an angle with respect to the inch line that is to be divided. Place a straight edge, such as a rule or an angle, close against the under  
80 side of bar *b*, of the tool while holding the latter in the adjusted position. Then slide the tool along the straight edge until the scale edge *g*, registers with one end of the inch line. Then intermittently move the  
85 tool to bring the succeeding graduated scale lines along the edge *g*, into intersection with the inch line, dotting the inch line at each point of such intersection and when the bot-  
90 tom of the inch line comes into register with the scale it will be found that said inch line will have been divided into twelve parts.

It will thus be seen that the scale *k*, may be utilized to effect the functions of numer-  
95 ous scales because by it lines varying materially in length may be readily divided into many different numbers of equal parts.

The edge *g*, along bar *f*, and the edges of bar *c*, adjacent to the graduated lines are beveled and brought to substantially a knife-  
100 edge to facilitate the making of dots on the paper at said lines with a pencil or other tool.

It is obvious that the present invention may be utilized in connection with any  
105 measurement scale other than inches and the invention is to be construed with this understanding.

Having thus described my invention what I claim is,—  
110

1. A draftsman's tool comprising a plate having two right angle bars and an inclined bar connecting said two right angle bars whereby to form a triangle and said plate  
115 also having a series of bars and slots of uniform width.

2. A draftsman's tool comprising a plate having two sides at right angles and an inclined side connecting the ends of the two  
120 right angle sides one of said right angle sides being provided with a scale,—said plate also having a series of lines extending across it in an inclined direction from the outer edge of one of the right angle sides and converging at a point adjacent to the  
125 angle formed by the joiner of the inclined side and one right angle side.

3. A draftsman's tool comprising a plate having a series of bars and slots and two  
130 edges at right angles to each other said plate



also having a line across it from the upper edge of the lowermost bar and at one corner of the lowermost slot.

5 4. A draftsman's tool comprising a triangular shaped plate having two right angle edges and an inclined edge and also having a slot along one of said right angle edges to form two parallel bars and the bar at the inner side of said slot having a scale along  
10 the slot edge.

5 5. A draftsman's tool comprising a plate having two right angle edges and a slot parallel with one of said edges to form parallel bars, the bar at the inner side of the  
15 slot having a scale and said plate also having a series of parallel bars and slots that extend at right angles with respect to the scale bar.

20 6. A draftsman's tool comprising a plate having two right angle bars and a slot therein that extends parallel with one of said

bars to form another bar, said latter bar having a scale thereon, and a bar extending in an inclined direction and connecting the ends of the right angle bars and said inclined bar having perforations therein. 25

7. A draftsman's tool comprising a triangular plate having a series of separated perforations along one edge each with an identifying character thereto said triangular  
30 plate also having a single point located thereon to coact with the locations of said perforations to divide a circle into parts of uniform size and the plate also having a  
35 straight edge in alinement with said single point location.

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

LEWIN J. HEATHCOTE.

Witnesses:

PORTER H. FLAUTT,  
BERTHA R. WALTER.