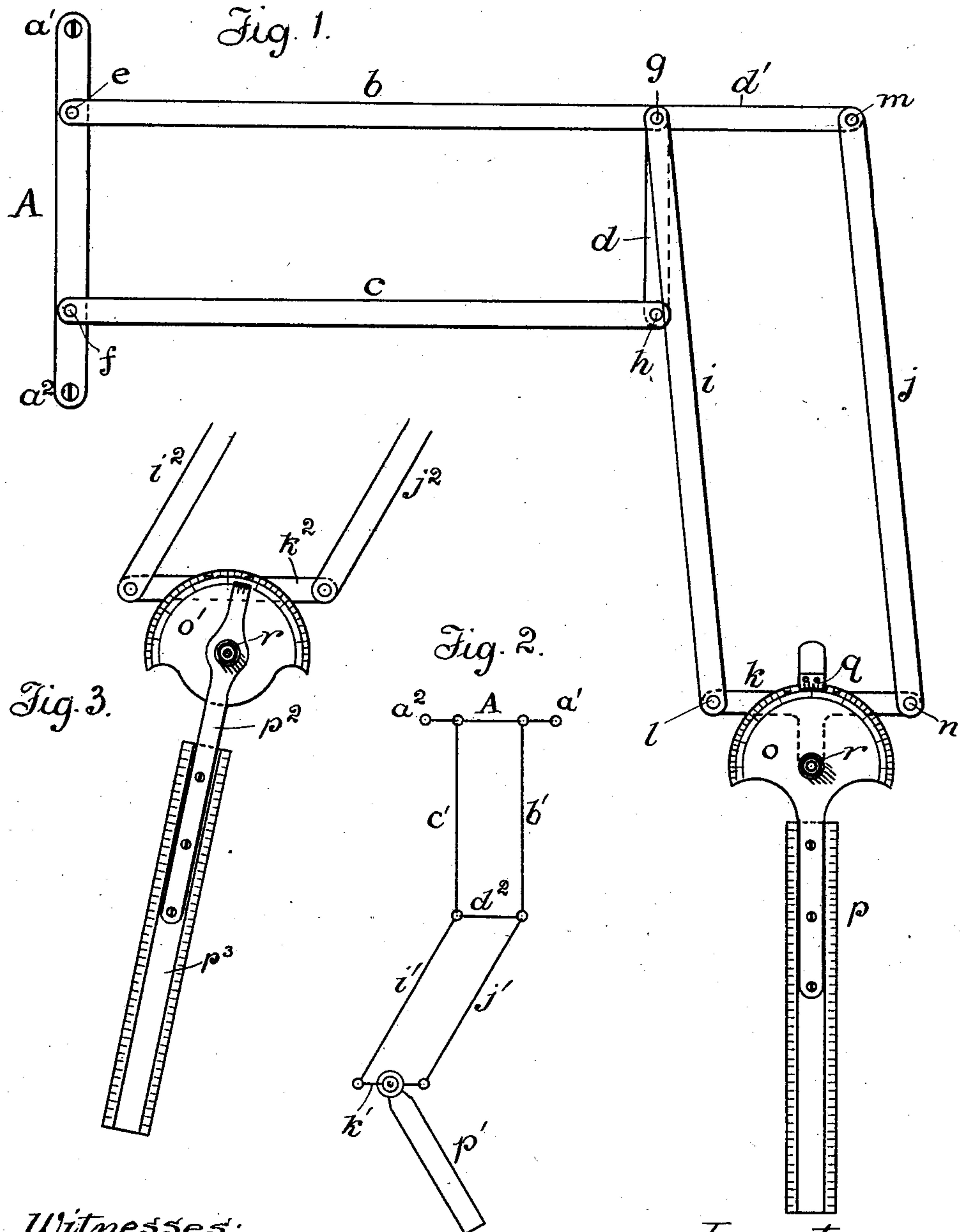


No. 747,522.

PATENTED DEC. 22, 1903.

L. E. WILKES.  
PLOTING INSTRUMENT.  
APPLICATION FILED SEPT. 30, 1901.

NO MODEL.



Witnesses:  
C. E. Sawyer  
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# UNITED STATES PATENT OFFICE.

LINCOLN E. WILKES, OF HILLSBORO, OREGON.

## PLOTTING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 747,522, dated December 22, 1903.

Application filed September 30, 1901. Serial No. 77,164. (No model.)

*To all whom it may concern:*

Be it known that I, LINCOLN E. WILKES, a citizen of the United States, and a resident of Hillsboro, Washington county, in the State of Oregon, have invented a new and useful Plotting Instrument, of which the following is a specification, reference being had to the accompanying drawings as constituting a part thereof.

My invention has for its object to obtain a drawing instrument which will facilitate the work of laying off boundary-lines and courses in accordance with field-notes; and the same consists of a jointed four-sided frame or 15 jointly-connected sections of two four-sided jointed frames, the distance between the joints of opposite members being equal, so that the four sides of each frame-section will represent a parallelogram. One end of 20 such frame constitutes a base and is adapted to be rigidly secured to the drafting table or board, and the other extremity is provided with a jointedly-attached and extending ruler, along the edges of which the courses 25 are to be drawn and the required length set off by the graduated edge thereof. The free end of said frame is movable over any part of the paper on which the plot or figure is being developed, and said ruler is adjustable 30 to any convenient angle of deflection, and each of the angles of deflection to which said ruler may be adjusted will at any part of the drafting area accurately correspond with the common meridian or base from which the 35 courses are determined. Besides the advantages afforded by my plotting instrument, as will be hereinafter shown, the same is particularly serviceable for making plots on a large scale.

The details of the construction of my invention are as shown in the drawings, in which—

Figure 1 shows a plan of my said plotting instrument. Fig. 2 is a diagrammatic representation of my invention modified to a simple form of construction, and Fig. 3 shows a modification in the construction of the parts at the free end of the frame carrying the protractor and adjustable blade or ruler.

Referring to the letters as designating the parts specified in the description of my invention hereinafter given and describing,

first, Fig. 1, A is a bar which is adapted to be rigidly secured to the drafting table or board and represents the fixed base from 55 which the plot or figure is to be developed. As shown in the drawing Fig. 1, said base-bar is provided at its extremities  $a'$   $a''$  with perforations in which to receive screws to secure said bar in place. To the central por- 60 tion of such base-bar at  $e$  and  $f$  are jointedly attached bars  $b c$  of equal length, and to the extremities  $g h$  of said bars  $b c$  is jointedly attached the bar  $d$ , having a right-angle extension or member  $d'$ . To the points  $g m$  of 65 said member  $d'$  are jointedly attached the arms  $i j$  of equal length, and to the extremities  $l n$  of said arms  $i j$  is jointedly attached a bar  $k$ . The member  $d'$  and bar  $k$  are of equal length, and the bar  $d$  is of a length 70 corresponding to the distance between the joints  $e$  and  $f$ . In other words, the four sides of each section of the jointed frame—as, for example,  $A d b c$  and  $d' k j i$ —represent a true parallelogram. 75

By observation of the instrument described it will be seen that the bar A functionates as a fixed base and that the jointed connection of the bar  $k$  therewith is such that the latter will constantly maintain its relative position 80 with respect to such base-bar A no matter to what point of the surface of the paper the bar  $k$  may be moved, and consequently when the ruler  $p$  has been set to a true perpendicular position it will correctly represent a meridian at any point of the drafting-surface, 85 and the angle to which such ruler is deflected will represent the angle of deflection from such meridian, and a line or course corresponding to such angle of deflection may be 90 accurately produced by marking along the edge of the ruler on any part of the drafting area, the length of the line being determined at the same time by the graduations along the edges of the ruler. For a greater con- 95 venience the bar  $k$  of the instrument shown in Fig. 1 is provided with a pivoted protractor  $o$  and a fixed vernier  $q$ , to which to adjust the graduated edge of the protractor, and the ruler  $p$  in this case is a prolonged 100 radius of the circle of such protractor. In Fig. 3 the protractor  $o'$  is rigidly attached to the bar  $k^2$  and has pivoted to the center of its circle an arm  $p^2$ , moving over the protractor.



tor, and to such arm is attached a ruler  $p^3$ , the arm  $p^2$  being provided with an index or vernier  $q'$  at its extremity. In either case the joint of the ruler is such that the latter  
 5 after having been properly adjusted may be fixed in place by means of a thumb-nut  $r$ . The provision of a protractor is optional, and when my instrument is not provided with a protractor a separate protractor may be  
 10 properly secured at any convenient point within the sweep of the ruler, the ruler set to the desired angle, as ascertained from said separate protractor, then clamped, and finally carried to the point from which course the  
 15 line is to be drawn.

When my instrument is constructed without a protractor, its use is limited to producing a line at one point corresponding with the position or direction of a line at another  
 20 point and operates in this respect like a parallel ruler; but my ruler possesses far greater advantages than the parallel-ruler, for it may be conveniently used for transferring a line from one point to another over a large  
 25 drafting area, and, furthermore, the zero-point on the scale edge of the ruler may always be brought to the beginning of the line, so that the latter may be simultaneously measured and ruled. In Fig. 2 the right-angle

extension or member  $d'$  (shown in Fig. 1) is 30 omitted, and the extremities of the side bars  $i' j'$  corresponding to the bars  $i j$  of Fig. 1 are directly jointed to the ends  $h g$  of the end bar  $d'$ . This is a mere simplification of my instrument, not affecting its described opera- 35 tion.

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

A plotting instrument consisting of a base- 40 bar adapted to be fixedly secured; a jointed frame comprising members  $b, c$  and  $d$ , the latter having an integral right-angle extension  $d'$ ; a second jointed frame comprising members  $i, j, k$ , of which the members  $i$  and 45  $j$  are jointed at  $g$  and  $m$ , respectively, of the main frame; a radially-adjustable ruler, carried by the free end of the second jointed frame; and means for indicating the degree of the angle to which such ruler has been 50 adjusted.

In testimony whereof I have hereunto affixed my signature, in the presence of two witnesses, this 4th day of September, 1901.

LINCOLN E. WILKES.

Witnesses:

T. J. GEISLER,  
 E. M. HOWATSON.