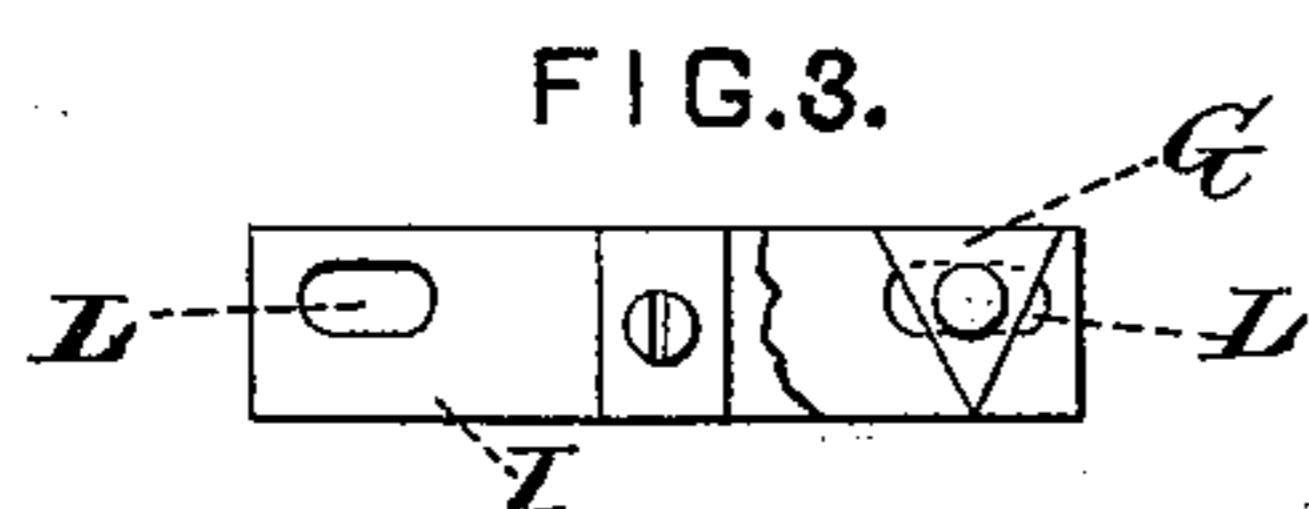
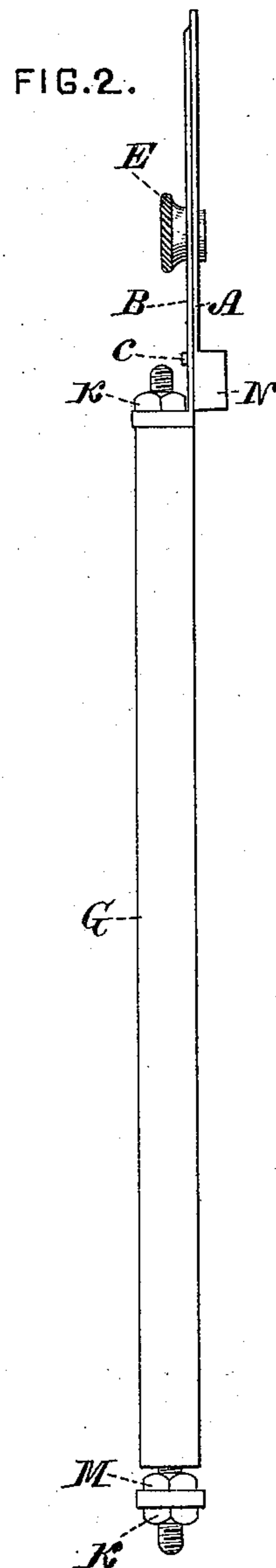
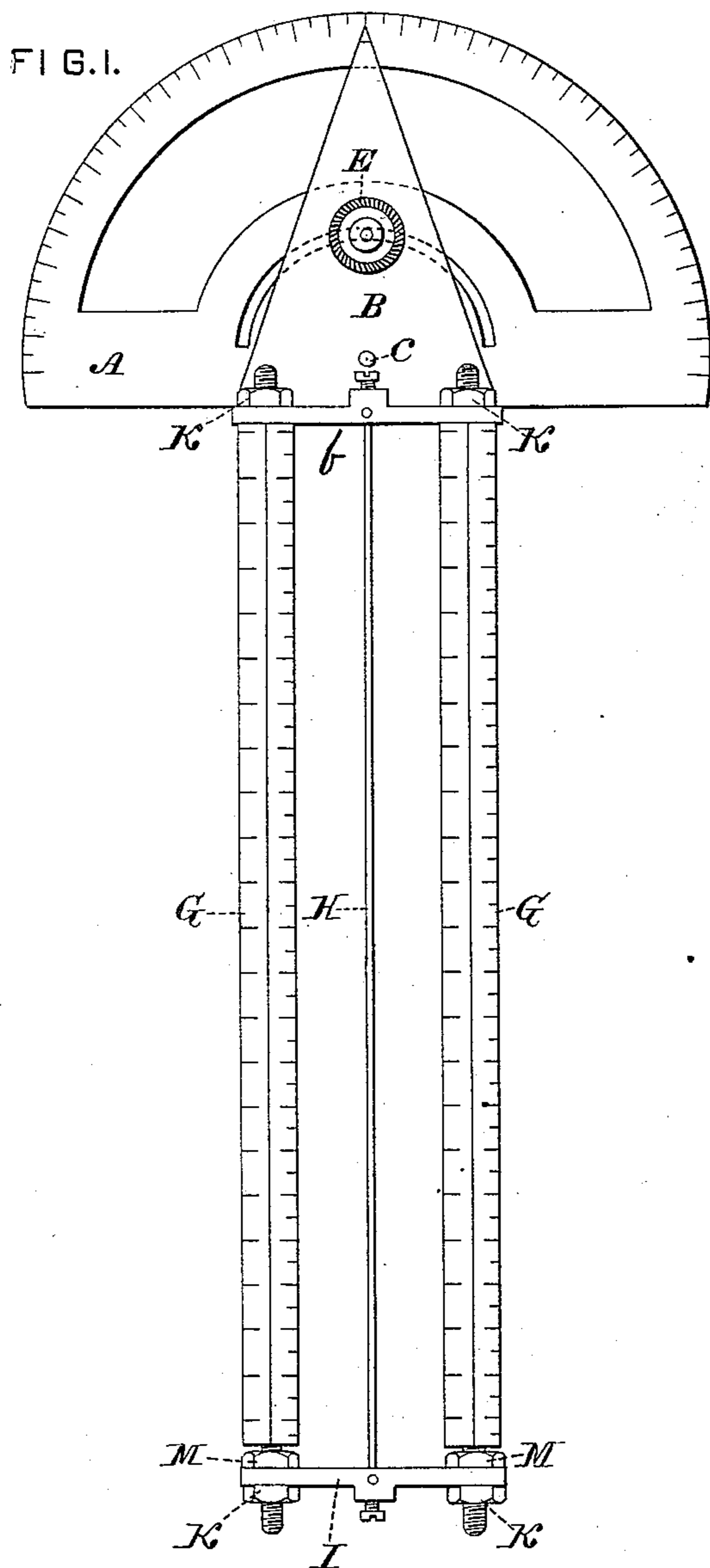


(No Model.)

R. L. BARNHART.  
PLOTTER.

No. 448,109.

Patented Mar. 10, 1891.



WITNESSES:

*F. E. Gaither*  
*E. Newell*

INVENTOR,

*Robert L. Barnhart*

# UNITED STATES PATENT OFFICE.

ROBERT LESLIE BARNHART, OF PITTSBURG, PENNSYLVANIA.

## PLOTTER.

SPECIFICATION forming part of Letters Patent No. 448,109, dated March 10, 1891.

Application filed October 21, 1889. Serial No. 327,737. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT LESLIE BARNHART, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Drafting-Instruments; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This instrument is adapted for the office use of draftsmen, architects, and civil engineers for drawing machines, elevations, and plotting contours of ground, &c.

The invention consists, mainly, in the construction and combination of parts forming the longitudinal portion of the instrument.

In the drawings, Figure 1 is a plan view of the instrument. Fig. 2 is an edge or side view of the same. Fig. 3 is an irregular end view, certain parts being removed and broken away.

The head A of the instrument is a thin plate having the form of an ordinary protractor. Its curved edge is graduated and its straight inner edge N is thickened, Fig. 2, to form a shoulder or abutment adapted (in practice) to rest against the edge of a drawing board or table.

The triangular head B of the ruling portion of the instrument is pivoted to such semicircular head A at a point c, which is near the lower edge and equidistant from the ends of the latter. The point of said head B works on the graduated arc of the semicircular plate or head A, and thereby serves as an index of the degree to which the ruling portion G G H is adjusted. A screw E passes through the index B and works in a curved slot in the semicircular head A and serves to clamp the two parts together in any adjustment.

The body of the ruling portion of the instrument is composed of two triangular steel bars G G and a steel rod H, arranged equidistantly between the bars G G and parallel thereto. A flange is turned on the inner edge of the head B and the reduced ends of bars G G and rod H pass through it and are provided with nuts K and a screw for adjusting and securing them. The other ends of the

bars G G and rod H and bar I, which are arranged parallel to flange b and are similarly provided with tightening-nuts K and screw-nuts M, are also applied to the reduced threaded outer ends of the bars G G on the inner side of the cross-bar I and serve to adjust the tension of rod H by screwing them against the cross-bar, thus forcing it outward, as will be readily understood. The cross-bar I and the aforesaid flange on head B have coincident slots L to enable the bars G G to be adjusted laterally, so as to place them at a perfect right angle to the lower edge of head A when the index B points to ninety degrees. This is effected by loosening the nuts K and M and then tightening both them and the jam-nuts M after the required adjustment has been made. Each of the three plane surfaces or sides of the bars G G is graduated differently from the other two, so that each bar has three different scales for linear measurement.

To use the instrument, the longitudinal portion G G H is laid on the sheet to be ruled and the head A placed with its edge N against the edge of the drawing board or table. If it be desired to draw an oblique line or lines, the screw E is loosened and the part G G H turned on the pivot c and adjusted at the required angle denoted by the index B on the graduated arc of head A. The screw E being then tightened, the instrument is ready for the desired use.

The ruling-pen is drawn along the rod H, but the bars G G may be used as rules in many cases, although their chief functions are those before indicated.

What I claim is—

In an instrument of the character hereinbefore indicated, the combination, with the slotted protractor or head A, having an abutment N, of the index-head B and clamp-screw, the bars G G and ruling-rod H, the cross-bar I and opposite flange b, having slots to permit lateral adjustment of said bars G G, and nuts K and M, applied to the threaded ends of the latter, substantially as shown and described.

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

ROBERT LESLIE BARNHART.

Witnesses:

W. M. LINDSAY,  
R. H. McLARN.