

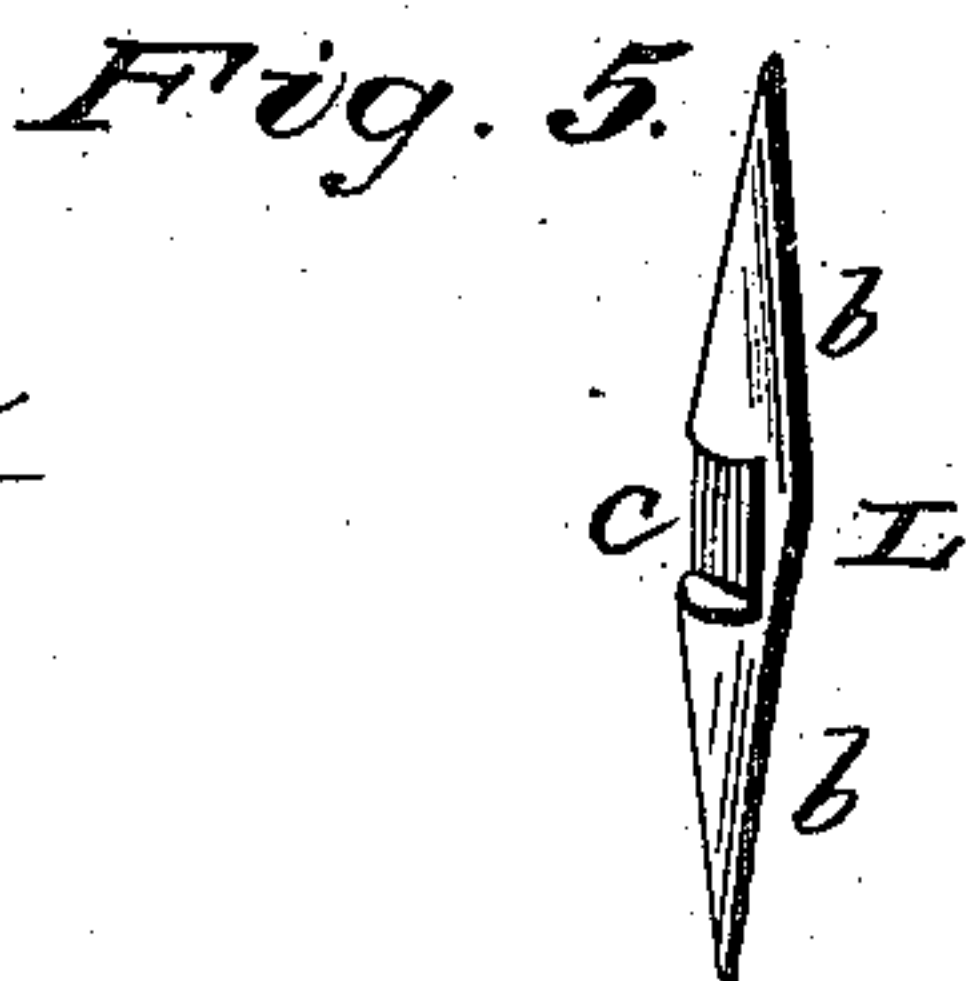
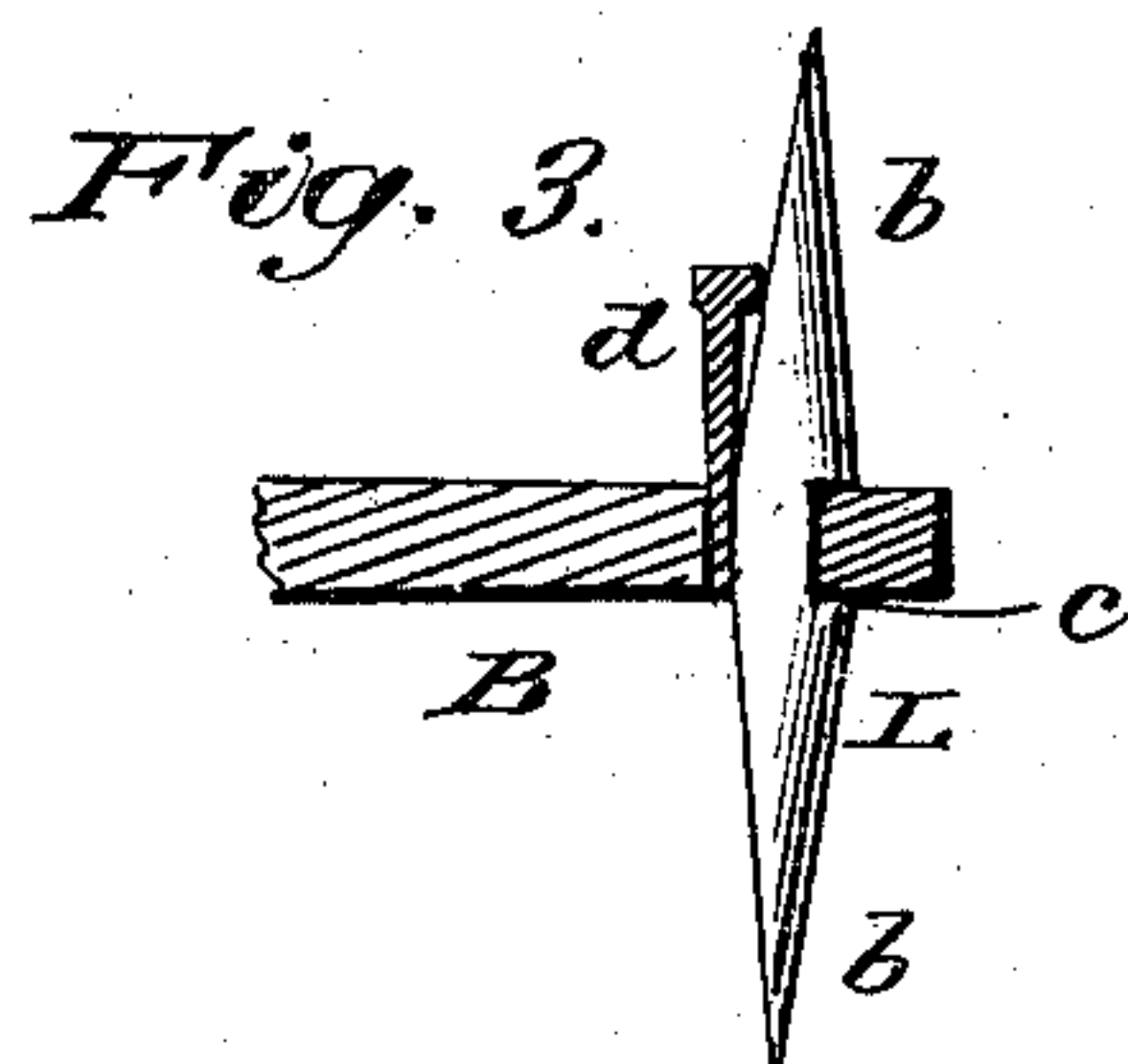
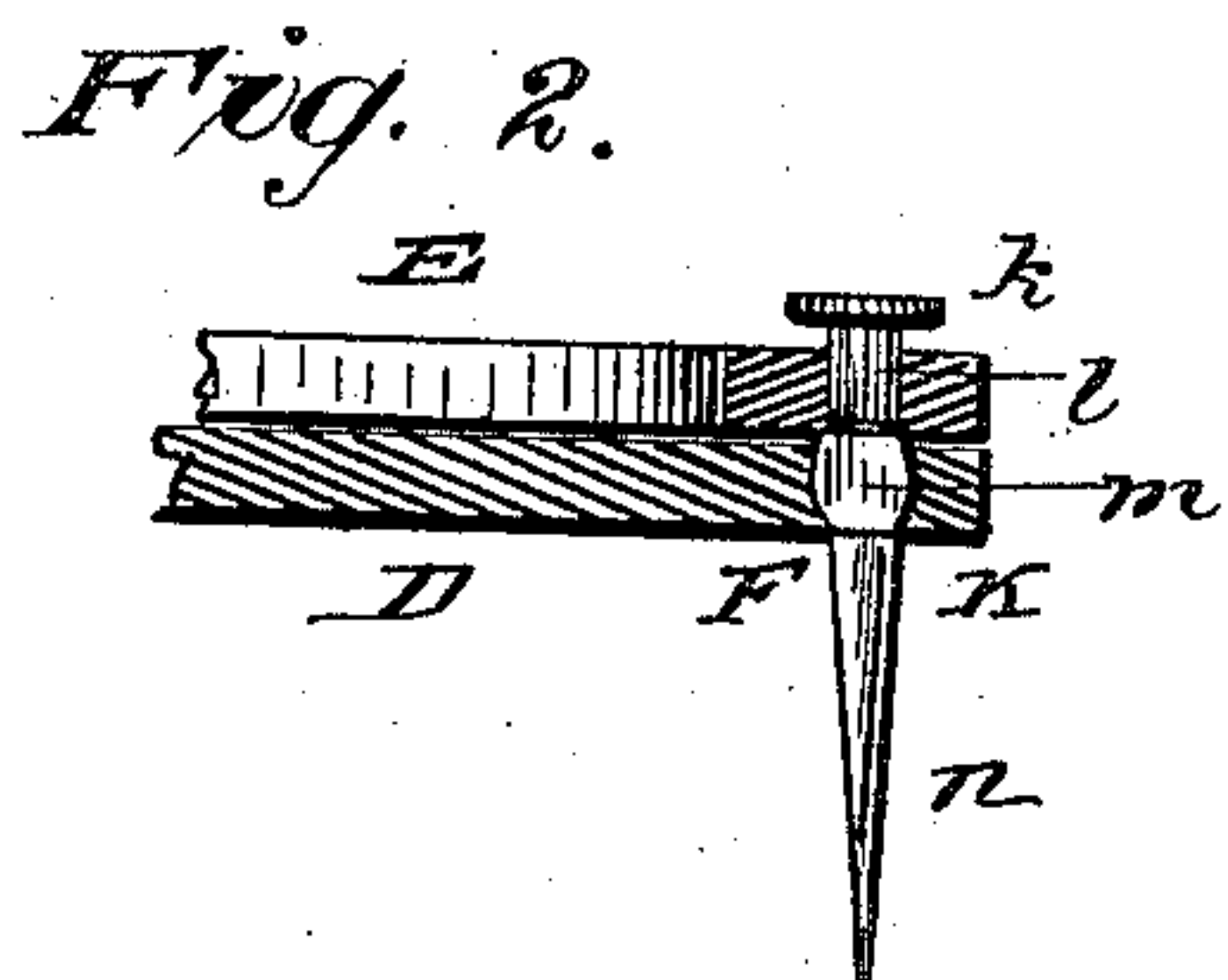
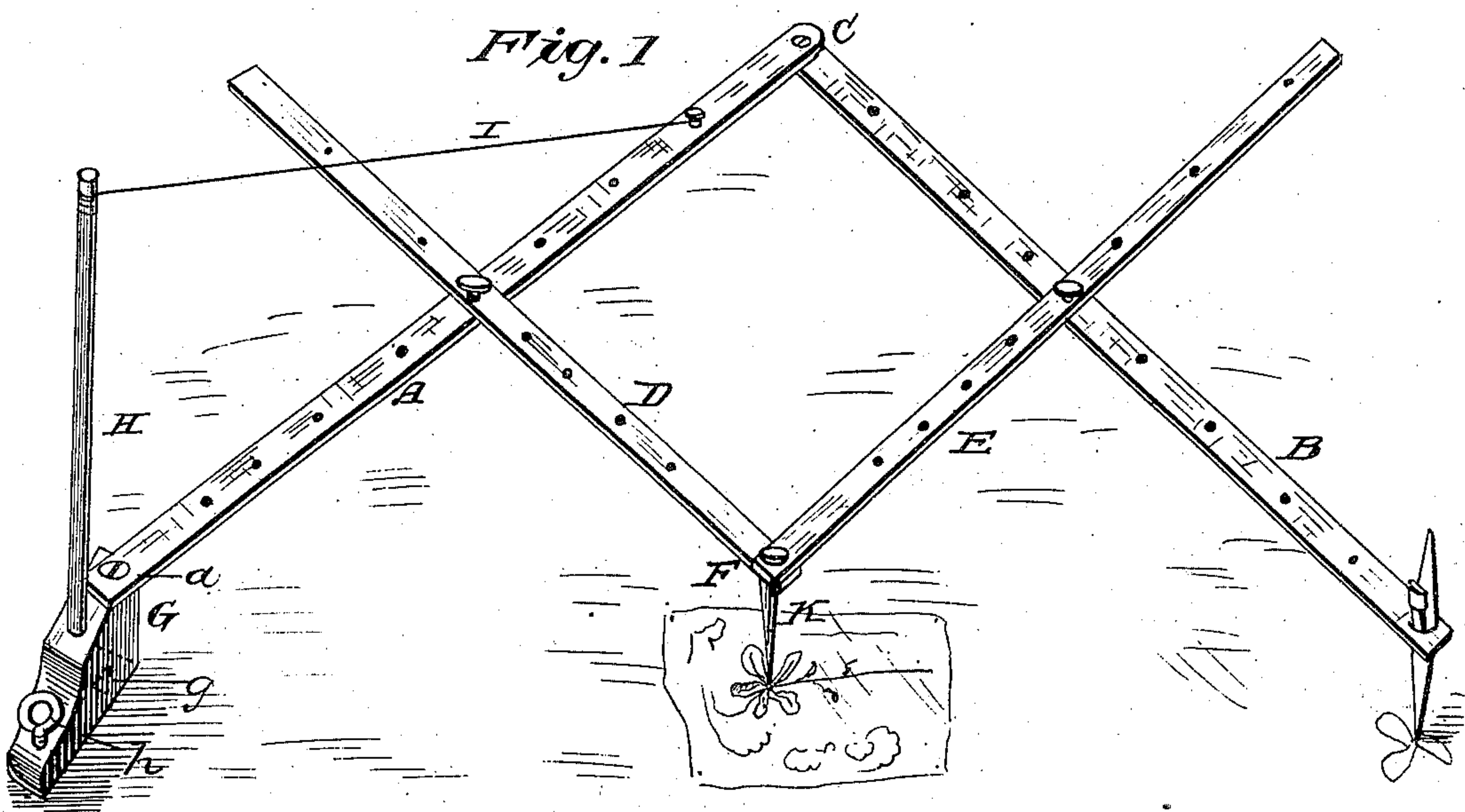
(No Model.)

J. T. GREGORY.

Pencil Attachment for Pantographs.

**No. 228,062.**

**Patented May 25, 1880.**



**WITNESSES:**

WITNESSES:  
Fred G. Dietrich  
Albert H. Krause

**INVENTOR:**

INVENTOR:  
*James T. Gregory*  
By *Louis Bagger & Co.*  
ATTORNEYS

**ATTORNEYS**



# UNITED STATES PATENT OFFICE.

JAMES T. GREGORY, OF ATHENS, TENNESSEE.

## PENCIL ATTACHMENT FOR PANTOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 228,062, dated May 25, 1880.

Application filed March 23, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES T. GREGORY, of Athens, in the county of McMinn and State of Tennessee, have invented certain new and useful Improvements in Pantographs; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of a pantograph embodying my improvements. Fig. 2 is a vertical section through the tracing-point. Fig. 3 is a similar section through the double-pointed pencil; and Figs. 4 and 5 are detail views, representing, respectively, the tracing-point and pencil (the construction of which constitutes my improvement) detached from the rules.

Similar letters of reference indicate corresponding parts in all the figures.

My improvement has relation to pantographs, (sometimes called "smithographs,") or instruments for copying, enlarging, or reducing drawings of all kinds; and it consists in an improved construction of the tracing-point and pencil, substantially as hereinafter more fully set forth, and particularly pointed out in the claims.

In the drawings, A B are two slats or rules, which are jointed at C; and D E, the second pair of rules, which are jointed at F. Each rule is perforated with a series of holes, and the first pair, A B, is provided with thumb-screws, by which they may be connected to D E at either of the holes of the series.

G is a block or chair for the attachment of the instrument upon the drawing board or table, it being provided with a sharp point, *g*, and gimlet-pointed thumb-screw *h* for that purpose. The first rule, A, is pivoted upon the chair at *a*, and is connected near its end to a detachable upright or standard, H, by a cord, I, which serves to hold the instrument in a level position upon the table.

Through the joint or apex F of the rules D E is inserted a soft-iron tracing-point, K, made with a round head, *k*, a short cylindrical shank, *l*, a flattened section, *m*, and a long point, *n*.

The flattened part *m* is inserted through the lowermost slat, D, of the pair D E, (see Fig. 2,) which prevents this slat from turning on the point, holding it firmly in its proper place, while the upper slat, E, has a free motion upon the cylindrical section *l*.

The pencil-point L, by which the fac-simile or copy is made, is inserted through an aperture in the end of slat or rule B. This point is double-pointed, as shown at *b b*, and is made with a notch, *c*, in its thick middle part, into which the rule fits, the pencil being held in place by a small key or wedge, *d*, inserted into the hole back of the notch. By withdrawing this key the pencil can easily be reversed when the point in use becomes dull.

The manner of using this class of instruments is well known and requires no further description.

The advantages of my improvement are, first, that the single tracing-point K, of the described construction, makes a superior joint between the rules D E, which it connects, and being inserted rigidly (by its flattened part *m*) through the lowermost rule, it does not turn, but moves steadily over the lines of the drawing which it is desired to trace; secondly, the pencil-point is reversible, and requires no screws or clamps to hold it in its place for working, its working-point being always at the proper distance from the paper on account of the notch *c*, which prevents it from slipping through the aperture in the rule into which it is inserted.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In a pantograph, the combination, with the rules A B, of the double-pointed pencil L, having notch *c* and key or wedge *d*, substantially as and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

J. T. GREGORY.

Witnesses:

E. N. NEWTON,  
R. A. ELLIS.