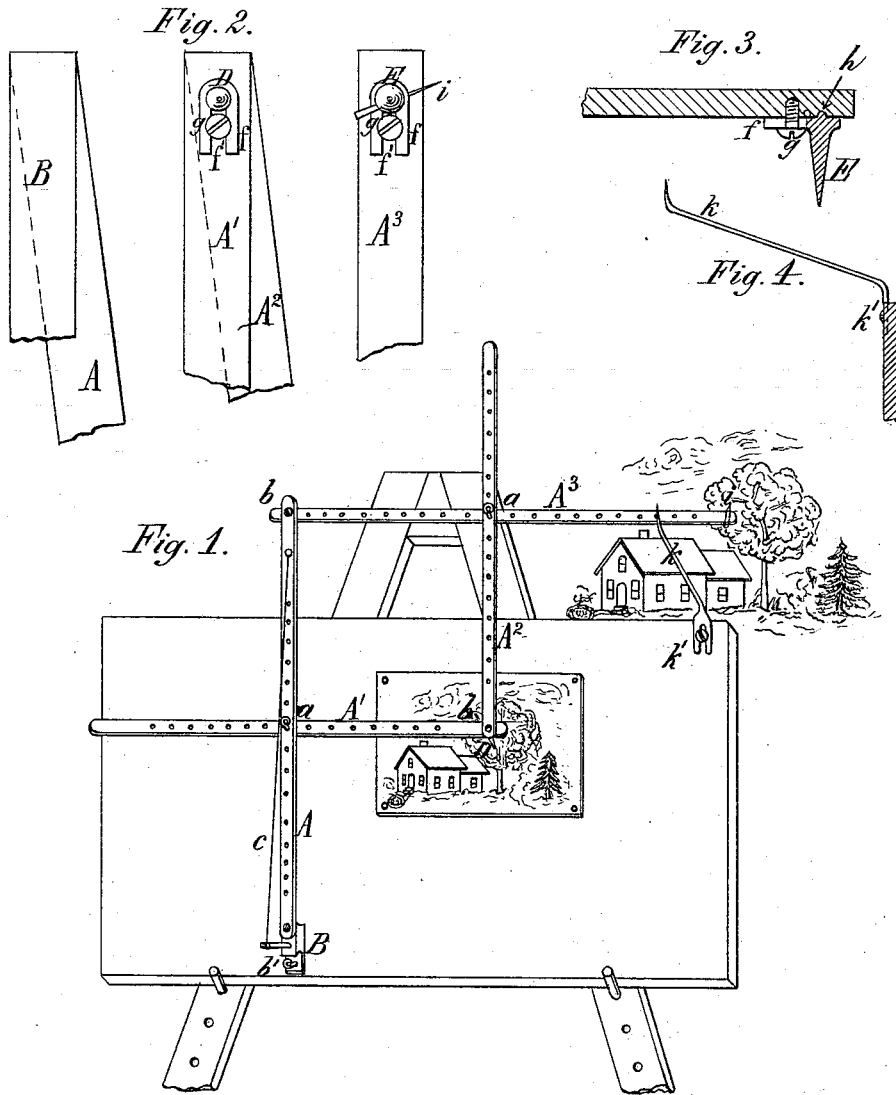


E. T. PEARL.
PANTOGRAPH.

No. 191,253.

Patented May 29, 1877.



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UNITED STATES PATENT OFFICE.

EUGENE T. PEARL, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN PANTOGRAPHS.

Specification forming part of Letters Patent No. **191,253**, dated May 29, 1877; application filed April 23, 1877.

To all whom it may concern:

Be it known that I, EUGENE T. PEARL, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Drawing Apparatus, which improvements are fully set forth in the following specification, reference being had to the accompanying drawing.

My invention relates more particularly to an instrument for copying drawings, generally denominated "pantograph," and composed of four bars jointed together, and provided with a marking and a tracing point, by means of which designs are readily drawn to any required size, either enlarged or reduced, with perfect accuracy.

My invention consists, first, of the peculiar construction of the points, so as to render them interchangeable; second, in providing the pantograph with a sight for sketching landscapes and other objects from nature; third, in providing the drawing-board with a fixed sight for facilitating the sketching from nature.

In the accompanying drawing, Figure 1 is a view of the pantograph applied to a drawing-board for sketching a landscape from nature. Fig. 2 is a fragmentary bottom view of the ends of the bars of the pantograph with the points applied thereto. Fig. 3 is a fragmentary sectional view of the marking-point secured to one of the bars. Fig. 4 is a side view of the fixed sight secured to the drawing-board.

Like letters of reference designate like parts in each of the figures.

A¹ A² A³ represent the four bars of the pantograph, jointed together at *a a* and *b b* in an ordinary manner. B represents the base, to which the stationary end of the instrument is pivoted, and which is secured to the drawing-board by a thumb-screw, *b'*, or in any other suitable manner. *c* is a brace or guy-line, attached with one end to an upright bar secured in the base B, and with its opposite end to the outer end of the bar A, for the purpose of retaining the instrument in an elevated position away from the drawing-board. D is the tracing-point, and E the marking-point, each provided with a base-flange, *f*, having an open slot, *f'*, through

which passes a fastening-screw, *g*, by which the points are secured to their respective bars. *h* is a projection formed on the under side of the base-flange *f*, and engaging in a corresponding depression or cavity formed in the under side of the respective bar, so that by placing the projection *h* in the cavity of the bar and applying the screw *g* the point is readily and accurately secured in place on the respective bar.

When the design to be copied is to be enlarged, the marking-point E is secured to the outer bar A³, and the tracing-point D to the bar A¹, while, when the design is to be reduced in size, the arrangement of the points is reversed.

Upon loosening the screws *g* the points are readily detached from the bars and interchanged, and again secured in place by tightening the screws *g*.

i is a projecting sight secured to the end of the bar A³, for sketching landscapes, buildings, and other objects from nature. As shown in Fig. 2, the sight *i* consists of a needle-point arranged in a recess formed in the bar A³, underneath the base *f* of the point, so as to be held in place thereby. If desired, however, the sight *i* may be secured to the bar A³ in any other suitable manner.

In sketching from nature the instrument is arranged on the drawing-board, as shown in Fig. 1, with the bar A³ projecting above the board and the marking-point secured to the bar A¹. The outlines of the picture are then drawn by following the outlines of the object with the sight *i*, care being taken to keep the eye always in the same position.

In order to prevent the eye-point from being shifted as the drawing progresses, I provide a stationary sight, *k*, which is composed of a wire of suitable length, terminating in a point, and provided with a flange, *k'*, by which it is attached to the drawing-board in such manner that the point of the sight *k* will be arranged at a short distance in front of the eye of the operator. By bringing the eye opposite to the stationary sight *k* and the movable sight in line with the object to be drawn, an accurate perspective view of any object can be produced in a very short time, as the stationary sight *k* enables the operator to main-

tain the eye stationary while following the movements of the sight *i* attached to the pantograph.

For sketching objects situated in close proximity to the operator—as, for instance, for drawing the profile of a person—the sight *i* may be replaced by a wire of suitable length, which is brought in contact with the object to be drawn and passed along the outlines thereof.

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

1. The points D E, each provided with a base-flange, *f*, having an open slot, *f'*, and projection *h*, for rendering the points inter-

changeable, substantially as hereinbefore set forth.

2. The combination, with a pantograph, of a projecting sight, *i*, attached to the outer bar A³, for sketching from nature, substantially as hereinbefore set forth.

3. The combination, with a pantograph provided with a sight, *i*, of a drawing-board having a fixed sight, *k*, substantially as and for the purpose hereinbefore set forth.

EUGENE T. PEARL.

Witnesses:

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