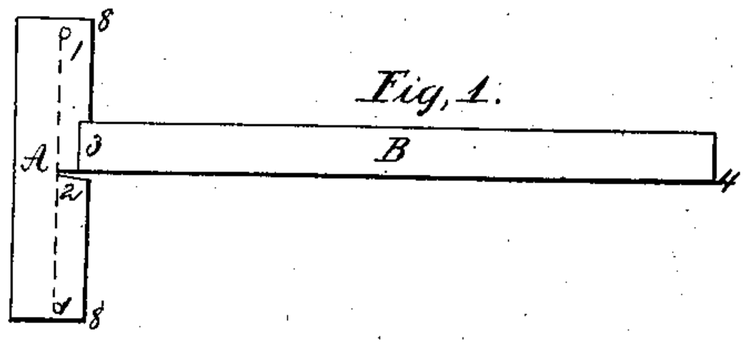
W. J. Von Kammerhueber.

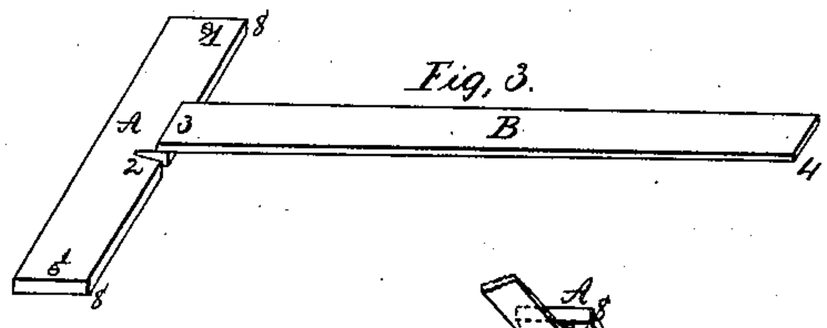
Drafting Plotters.

No. 15,359. Patented Jul. 15, 1856.

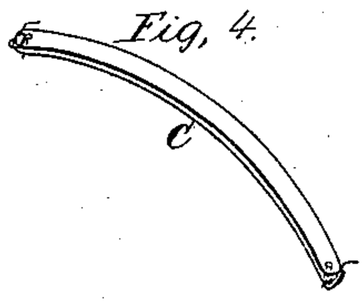


Fig, 1.

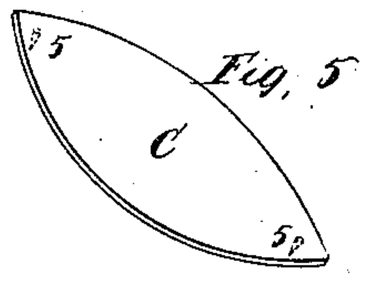
Fig, 2.



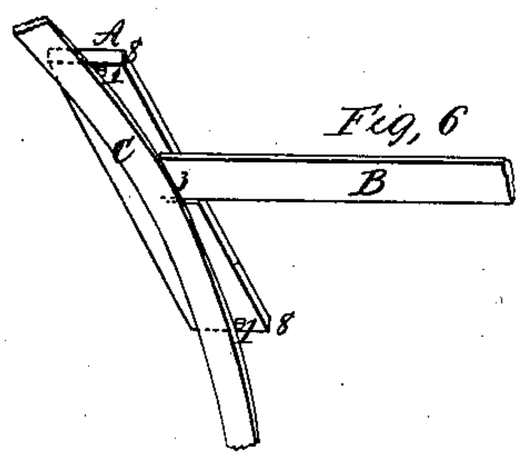
Fig, 3.



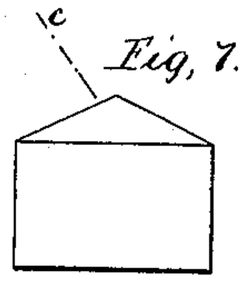
Fig, 4.



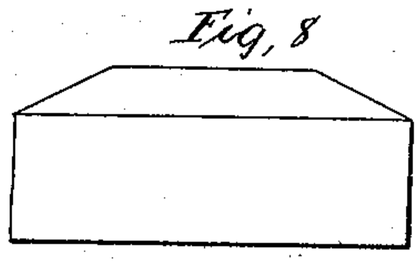
Fig, 5



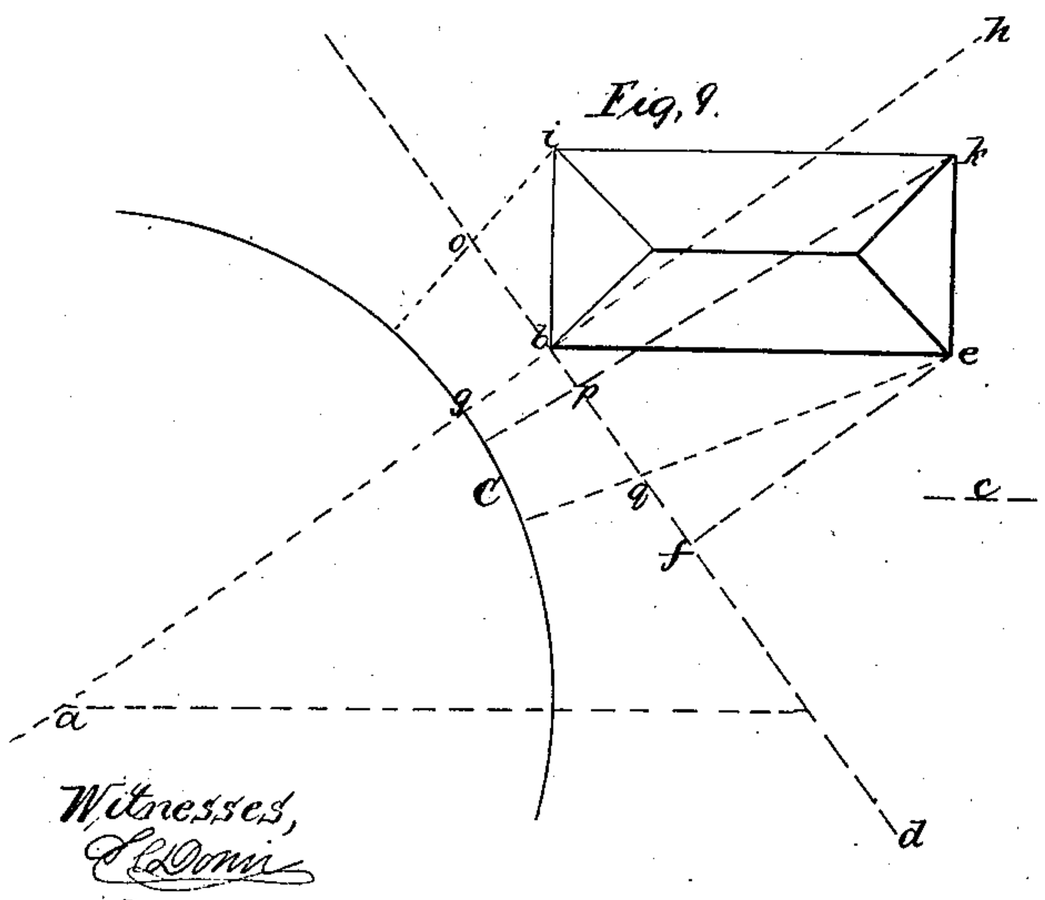
Fig, 6



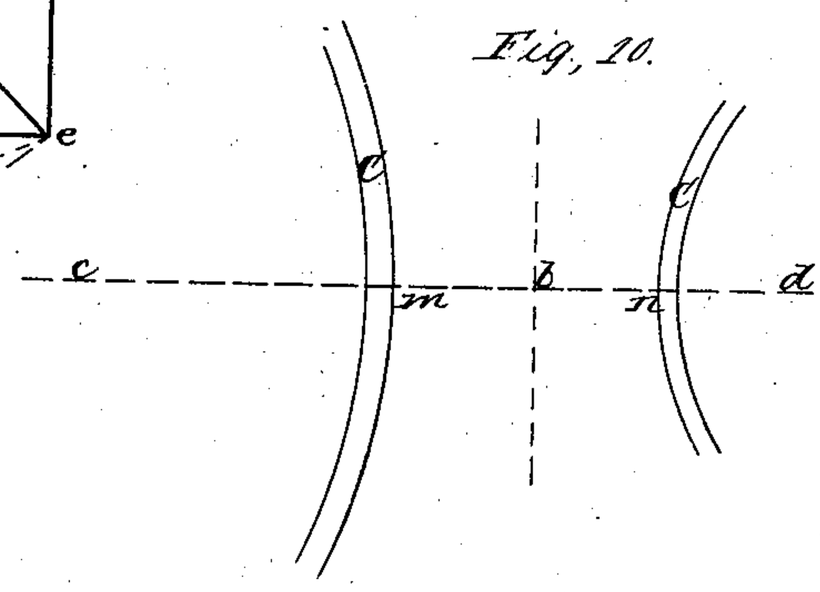
Fig, 7.



Fig, 8



Fig, 9.



Fig, 10.

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UNITED STATES PATENT OFFICE.

W. JOSE VON KAMMERHUEBER, OF WASHINGTON, DISTRICT OF COLUMBIA.

CENTROLINEAD.

Specification of Letters Patent No. 15,359, dated July 15, 1856.

To all whom it may concern:

Be it known that I, WILDERICH JOSEPH VON KAMMERHUEBER, of Washington, in the District of Columbia, have invented a new and useful Improvement in Apparatus for Constructing Perspective Drawings; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure I, is a horizontal, and Fig. II a vertical projection of my improved T square; and Fig. III is a perspective view of the same, exhibiting the peculiar construction of it. Fig. IV and Fig. V are perspective views of the sheet-metal patterns or arcs, to be used in connection with the above mentioned square. Fig. VI shows the manner in which the T square is to be used in connection with the arc. Figs. VII, VIII, IX and X illustrate the operation of my improved perspective apparatus.

Similar letters of reference in each of the several drawings indicate corresponding parts.

This invention relates to certain new and useful improvements in apparatus used in the construction of perspective drawings, which apparatus enables to execute the drawing without large tables, long squares or other inconvenient instruments, in a very correct and most easy manner, reducing the troublesome operation of drawing lines toward an inaccessible or distant vanishing point, to the simple operation of a T square, now in common use.

My invention consists, 1st, in providing the cross piece A of a T-square, Figs. I, II and III, with two projections or pins 1, 1, on the lower side, or their equivalents; and providing the same with a notch 2. The edge 2, 4, of the blade B of this T-square is placed in the center between the two pins 1, 1, and perpendicular to the connecting line of these two pins.

2d, it consists also in a certain number of sheet metal-patterns or arcs, Figs. IV and V, of different diameters; provided with pins 5, 5, or their equivalents, for the purpose of securing them in any required position to the drawing board.

To enable others skilled in the art to use and make my invention I will proceed to describe its construction and operation.

In perspective drawing it frequently happens, that the vanishing point is more than two feet from the center of the picture and therefore requires for the construction of a perspective view large tables, long squares, and other inconvenient arrangements. The intention, to avoid this, led Peter Nicholson to the invention of his centrolinead, described and illustrated on page 161 and Plate LXXVIII of the "New Practical Builder," Vol. III, London, Thomas Kelly, No. 17, Paternoster Row, 1837. But Nicholson's centrolinead is a pretty complicated and costly instrument, requires several settings and the two legs are very inconvenient appendages.

In the following an instrument will be described, which is much simpler, cheaper and easier to be handled, than the above named.

This instrument consists in a T-square, Fig. I, which may be used in the position shown in that figure as a common T-square, the edge 8 of the cross-piece coming in connection with the edge of the drawing-board. The cross-piece is provided on the lower side with two projections 1, 1, or their equivalent, and the longitudinal blade B, serving as the ruler, is in such a way connected with the cross-piece, that its edge 2, 4 divides the space between the two projections or pins in two equal parts 1, 2 and 2, 1. The cross-piece of this T-square is also provided with a notch 2, to enable seeing the periphery of the sheet metal pattern or arc, on which the square is to be laid with its two projections. This notch is to be continued to the connecting line 1, 2, 1 of the two projections. The blade of the T-square has to project so much over the lower side of the cross-piece, as amounts the height of the two projections 1, 1, so as to be in contact with the drawing-paper. The end-part 3 of the longitudinal blade must allow a space between itself and the connecting line 1, 2, 1, of the projections, so that when the sheet-metal pattern or arc of the smallest diameter, to be used, is laid on the two projections, it will not strike the end part 3.

This invention consists also in a certain number of patterns or arcs of different diameters, made of any desirable sheet-metal or any other material, which will not alter its shape by the influence of moisture. These patterns may be made so as to represent only one arc, as shown in Fig. IV, or they may

consist in two arcs of different diameters, as shown in Fig. V. They are provided with two pins 5, 5, or their equivalent for the purpose of securing them to the board in any required position.

By laying the T-square with its two projections on the periphery of one of the patterns, as represented in Fig. VI, and moving it along that periphery, the blade B will in every position assume with mathematical correctness the direction of a radius of the arc of such diameter, as belongs to the periphery, and therefore produce the same result as if all those lines were drawn toward one point which represents the vanishing point.

Operation: The point *a* in Fig. IX representing the point of sight, connects the same with the corner *b* by a line *a b*, and draw through the corner *b* a line *c d* perpendicular to the line *a b*. This line *c d* is the horizontal projection of the plane of the picture.

The two vanishing points may be represented by the points *c* and *d*. Their respective distances from the center *b* of the picture will be found in the following manner. Draw a line *e f* through *e* perpendicular to the line *c d*, and measure the length of *e f* and *b f; b d* will be found by multiplying the length of *b f* with that of *a b* and dividing the product by that of *e f;* in the same manner the length of *b c* is the result of multiplying that of *e f* with that of *a b* and dividing the product by that of *b f*. Now suppose *a b* may be 3 feet 8 inches, and by measuring *e f* may have been found equal to 4 inches and *b f* equal to 3 inches. In this case *b d* will be equal to $2\frac{3}{4}$ feet, and *b c* equal to 4 feet $10\frac{2}{3}$ inches. Take 8 inches from the corner *b* in the direction toward *a*, so that the line *b g* is 8 inches in length; put upon the point *g* the pattern or arc of the diameter of 6 feet, then put the T-square with its two projections above described, on the periphery of said arc, and turn it around the point *g*, till the blade of the T-square has the direction of the line *a b h*. Then secure the pattern to the board. By moving the square along the periphery of the secured pattern, the lines *o, i; p, k; q, e; r r*, and as many as are wanted, may be drawn in the most correct and easy manner.

On the board, on which the perspective picture is to be executed, a horizontal line *c d* (Fig. X) is to be drawn, which line is to be in the height of the point of sight. On this line a point *b* is to be selected, which represents the corner *b* of the ground plan in Fig. IX. From this point *b* take $\frac{3}{4}$ foot to the right and $10\frac{2}{3}$ inches to the left side, so that *m b* will be $10\frac{2}{3}$ inches and *n b* $\frac{3}{4}$ foot in length. After this take the pattern of 8 feet diameter, put it with the periphery on the point *m*, lay the T-square with its two projections on the said periphery, and turn the pattern around the point *m*, until the blade of the T-square has come exactly into the direction of the line *c d;* then secure the pattern to the board. In the same manner a pattern of 4 feet diameter may be secured on the point *n*, so that the blade of the T-square, laid on it with its two projections, assumes the exact direction of the line *c d*. And then proceed to construct the picture according to the general rules of perspective drawing.

Having thus fully described the construction and operation of my invention, I will now state I do not limit myself to two projections, provided on one side of the cross-piece, as both sides of the same may be provided with two projections or their equivalent, whereby only one edge of the blade of my centrolinead is to be used for drawing lines; but

What I claim and desire to secure by Letter Patent is:

I claim the combined T square and centrolinead, constructed as above described in connection with the circular arcs of different diameters and of any suitable material, provided on their ends with pins or their equivalent to secure them to the drawing board, when used to guide the centrolinead as within described and set forth.

WILDERICH JOS. VON KAMMERHUEBER.

Witnesses:
THOMAS C. DONER,
JOHN DE LA CAMP.