(No Model.) 2 Sheets—Sheet 1.

W. E. SPEIR.

PERSPECTIVE DELINEATOR FOR DRAFTING.

No. 312,175. Patented Feb. 10, 1885.

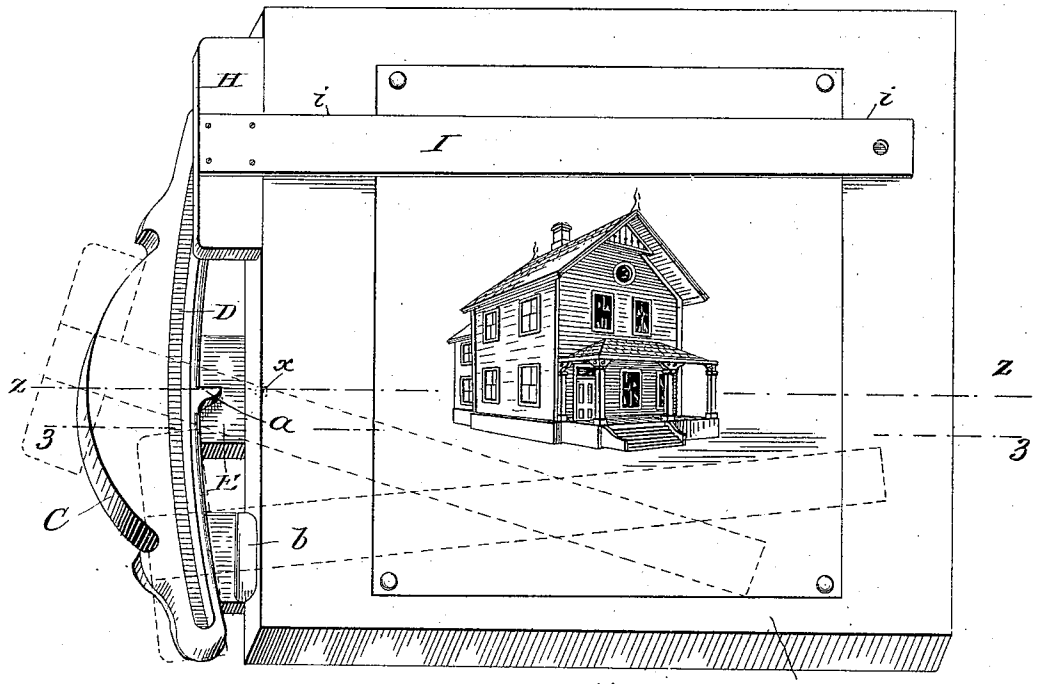


Fig. 1.

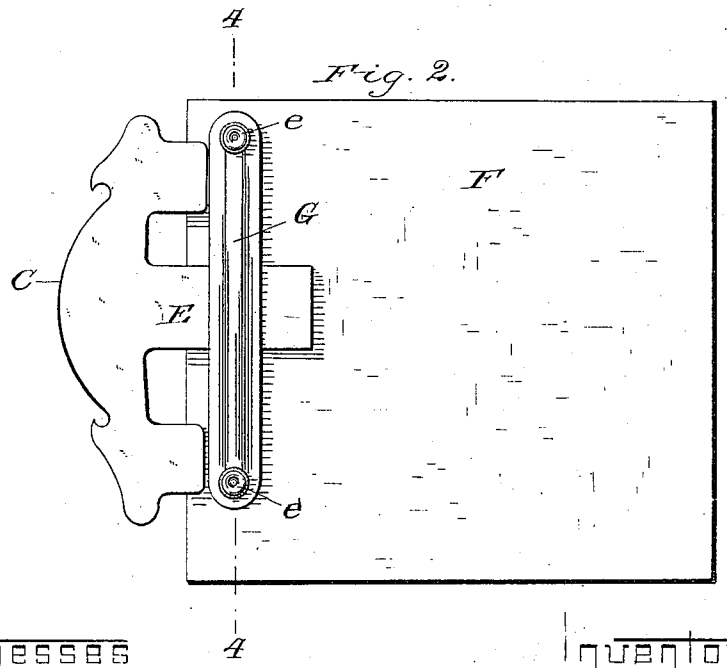


Fig. 2.

Witnesses
L. A. Conner Jr.
E. D. Smith

Inventor
William E. Speir.
by N. W. Low
attorney.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

W. E. SPEIR.

PERSPECTIVE DELINEATOR FOR DRAFTING.

No. 312,175. Patented Feb. 10, 1885.

Fig. 3.

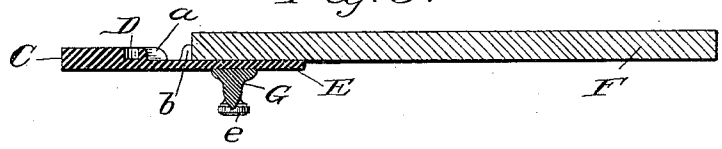


Fig. 4.

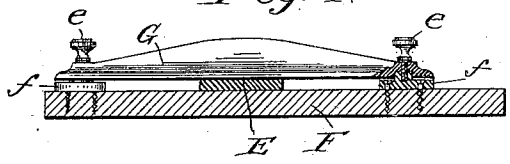


Fig. 6.

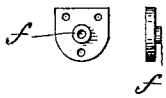


Fig. 5.

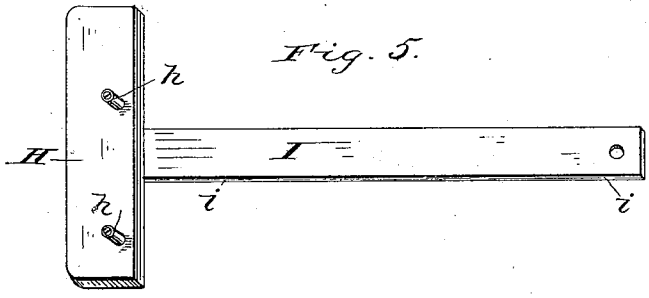
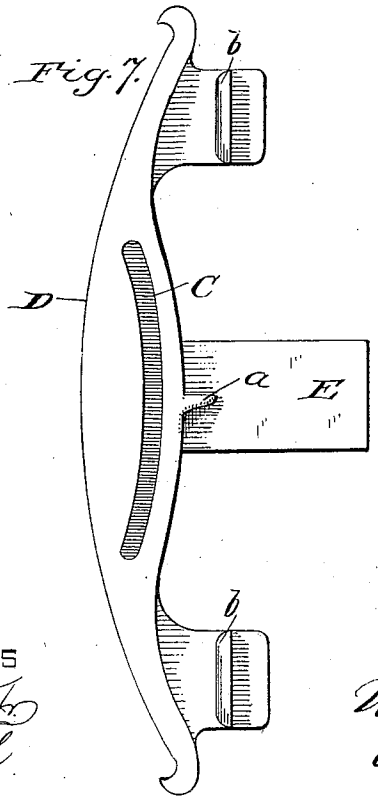


Fig. 7.



Witnesses
L. A. Conner Jr.
E. D. Smith

Inventor
William E. Speir,
by N. K. Low
attorney

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM E. SPEIR, OF AUGUSTA, GEORGIA.

PERSPECTIVE DELINEATOR FOR DRAFTING.

SPECIFICATION forming part of Letters Patent No. 312,175, dated February 10, 1885.

Application filed October 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SPEIR, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Perspective Delineators for Drafting; 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.

My invention relates to that class of drafting appliances known as "centrolineads." It is particularly adapted for use in perspective drawing, where it is often necessary to draw one or more series of lines to a point or points situated beyond the extent of the drawing-board. Most commonly these points are two in number, known as "vanishing-points," and situated one on each side of the surface of delineation and in the line of the horizon. Heretofore when the vanishing-points have been situated beyond the extent of the drawing-board, one method of directing lines to said points has been to nail upon each side of the drawing-board a concave arc having its center in that vanishing-point which is at the same side of the board. If a ruler with a cross-piece properly arranged and adapted to engage with said arcs have its cross-piece applied to either of them, its ruling-edge will be a radius which will be directed to the center of the arc, and serve as a guide for drawing the lines which are to vanish in said center.

My invention consists in a novel arrangement and construction of said arcs, in the means for attaching them to the drawing-board, and in the construction of the ruler used in combination with the arcs. In drawing, the ruler is shifted by one hand, commonly the left, while the pen is used by the other. It is therefore desirable to draw the lines to each vanishing-point from the same side of the board, to avoid changing the ruler to the right hand. To enable this to be done I have arranged both of the arcs upon one side of the drawing-board, the centers of the arcs being situated one upon each side of the surface of delineation, and constituting the vanishing-points of the drawing. This arrangement also permits both arcs to be made in one piece, and to be attached and removed together by one operation.

As the situation of the vanishing-points may be different in different drawings, a number of arcs of various radii will ordinarily be provided, from which the one suitable for the drawing to be made may be selected and secured in place. To enable this to be readily done I have devised a clamp of peculiar construction.

The vanishing-points are most commonly situated in the line of the horizon, which latter is perpendicular to the sides of the drawing-board. As the position of this line may vary between the bottom and top of the board, the clamp should be constructed so as to hold the arc at any desired point between the said extremes, that its center may fall in the said line. I prefer to make two arcs in one piece, as will be shown, but it will readily be understood that they may be made separate. In the latter case they may be made to fit one another, so that they may be held together and to the board at the same time by the clamp. Making the arcs separate has the advantage of allowing a greater variety of situations of vanishing-points to the same number of arcs. It is desirable that a single ruler should answer the purpose of drawing both the ordinary horizontal and vertical lines and the vanishing lines, and should also fit arcs of various degrees of curvature. I have attained these ends by combining with the ruler a cross-piece, adapting it to be used as a T-square, and two projections constructed to engage with the arcs, and arranged one upon each side of the ruling-edge of the blade, at equal distances from said edge and in a line at right angles to the ruling-edge.

In order to clearly explain my invention, I have embodied it in a device represented in the accompanying drawings, in which—

Figure 1 is a perspective view of a drawing-board and apparatus embodying my invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a section on line 3 3. Fig. 4 is a section on line 4 4. Fig. 5 is a detail view of the ruler which I prefer to employ. Fig. 6 illustrates by a plan and elevation a portion of the clamp for securing the arcs in place. Fig. 7 is a view of another form of the arc attach-

ment by which the left-hand vanishing-point is thrown to the left of the drawing-board.

Referring to said drawings, F represents a drawing-board of any ordinary or preferred kind. C is an arc having its center at *x*, at the left of the surface upon which the delineation is to be made, and D is another arc having its center at the right of said surface. These arcs are adapted to be engaged by the ruler, and should be so attached to the drawing-board as not to interfere with the use of the ruler as a T-square. When the left-hand vanishing-point falls to the left of the arc C, an arc will be used which is concave, as shown in Fig. 7, its center *x* being on its left. The position of the line in which the centers of both arcs lie is indicated by the mark *a*. This line will coincide with the line of the horizon *z z* when the arcs are in place.

To insure that the arcs may be readily put in place, so that the line in which their centers lie will be at right angles to that side of the drawing-board to which they are attached, I prefer to provide them with shoulders *b b*, arranged in a line at right angles to the said line of the centers, and adapted to engage with the side of the drawing-board. If the arcs are made separate, each should be provided with shoulders *b b*, or equivalent means, for facilitating its adjustment.

For holding the arcs in place I prefer to use a clamp consisting of a bar, G, extending along one side of the drawing-board.

Screws *e e*, engaging with the bar and with the board, form a convenient means for pressing the bar against the board.

For the engagement of the screws *e e* it is advisable to provide the board with metallic sockets *f f*, which may be permanently secured thereto so as not to interfere with its ordinary use when the arcs are removed.

From the arcs C D extends a projection, E, arranged to lie against the surface of the board and to be confined by the bar G under the action of the screws *e e*, as will be readily understood. If the arcs are made separate, there may be a projection from each, whereby said arcs will be held both in proper relation to one another and to the board at the same time. It will be readily seen that an arc may be adjusted along the side of the drawing-board to such point within the extent of the bar G that its center will fall in the line of the horizon.

I is a ruler, having a straight edge, *i i*, having connected therewith projections *h h*, adapted to be engaged with the arcs and direct said straight edge to the center of the arc to which they are applied. To this end said projections are arranged on each side of the edge *i i*, at equal distances therefrom and in a line at right angles thereto. Preferably the projections *h h* are connected to the ruler I through the medium of a cross-piece, H, arranged at right angles to the ruler. The device may then be used as an ordinary T square, as well as for drawing vanishing lines, and the projections *h h* may be placed at a greater distance apart than if connected directly to the ruler, insuring greater accuracy.

What I claim, and desire to secure by Letters Patent, is—

1. A drafting appliance having an arc adapted to be engaged by a suitable ruler, and a projection constructed to be detachably clamped to a drawing-board at various points along the edge thereof, substantially as set forth.

2. A drafting appliance adapted to be attached to a drawing-board, and having a plurality of arcs constructed to be engaged by a suitable ruler, and arranged to have their centers fall at different points when the appliance is in place, substantially as set forth.

3. A drafting appliance having an arc adapted to be engaged by a suitable ruler, shoulders for bearing against the edge of the drawing-board, and a projection constructed to be detachably clamped to the surface of the board, substantially as set forth.

4. The combination, with a drawing-board, of a bar extending along one of its edges, and devices for compressing said bar against the board, whereby the arcs for perspective drawing may be secured to the board at various points along its edge, substantially as set forth.

5. The combination, with a drawing-board, of a detachable arc adapted to be engaged by a suitable ruler, and a clamp for securing said arc to the board at different points along the edge of the latter, substantially as set forth.

6. The combination, with a drawing-board, of two arcs adapted to be engaged by a suitable ruler, and arranged to have their centers fall at different points at each side of the drawing, the arcs being both situated upon the same side of the board, substantially as set forth.

7. The combination, with a drawing-board, of a detachable arc adapted to be engaged by a suitable ruler, and having a projection, a bar extending along the side of the board, and devices for compressing said bar against the surface of the board to confine said projection between the board and bar and at various points of the length of the latter, substantially as set forth.

8. The ruler I, having a cross-piece, H, and projections *h*, arranged in a line at right angles to said ruler and upon each side thereof, whereby it may be used as a square or to draw vanishing lines, in combination with the board F, and an arc thereon having its center in the desired vanishing-point, substantially as set forth.

9. The combination, with a drawing-board, of an arc secured thereto, having its center within or beyond the opposite side of said board, and a ruler having projections for engagement with the arc, substantially as set forth.

10. The T-square H I, having the part H in a lower plane than the blade I, whereby said part H may engage with the edge of the drawing-board, while the blade I lies flat upon the surface of said board, the part H being provided with the projections *h*, substantially equidistant from and in a line at right angles to the blade I, as set forth.

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

WILLIAM E. SPEIR.

Witnesses:
C. HENRY COHEN,
D. L. ADAMS.