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DRAWING INSTRUMENT

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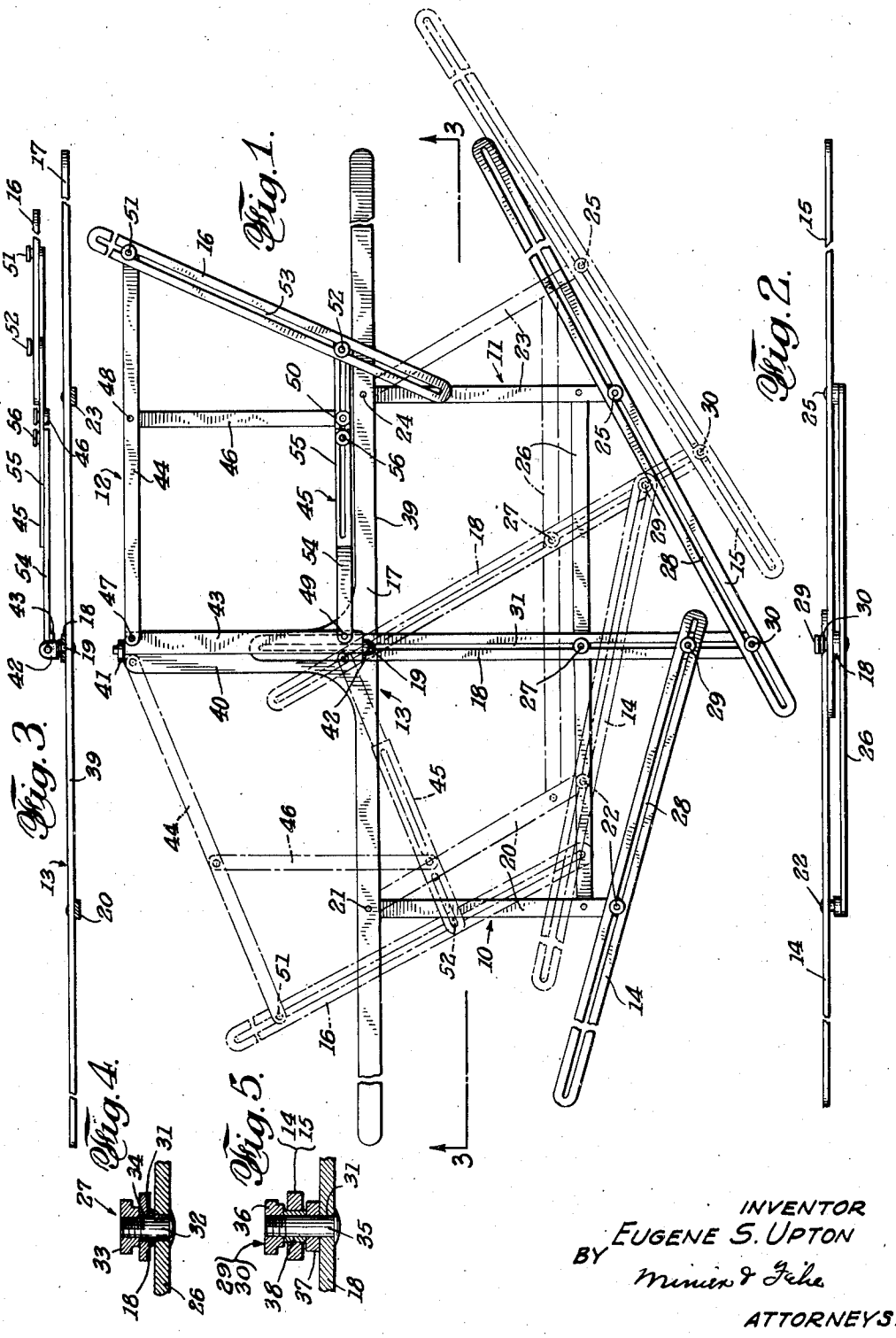


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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DRAWING INSTRUMENT

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8 Claims. (Cl. 33—77)

1

This invention relates to means for guiding the accurate location and angular disposition of the lines of perspective of drawings and the primary object of the invention is to provide a device which can be set to draw a multiplicity of lines converging on a common point in a facile, accurate and efficient manner.

Certain types of perspective drawings entail the location of two or more vanishing points, upon which the lines of the drawings converge. Frequently, these points are quite remote from the area of the drawing and offer considerable difficulty to the draftsman in executing the drawing.

Accordingly, another object of the invention is to provide a novel and adjustable device whereby the converging lines of perspective of a drawing may be accurately and quickly drawn regardless of the proximity or remoteness of the vanishing points on which said lines converge.

Another object of the invention is to provide a device of the character indicated which is unitary in construction, relatively small, and easily handled and operated so that a perspective drawing may be executed quickly, easily and accurately.

The foregoing and other objects, features and advantages of the invention will become more clearly evident as the following description of the invention, progresses. The accompanying drawing which forms part of this disclosure, comprises the basis for the decription in which a preferred embodiment of the invention is set forth.

In the drawing:

Figure 1 is a top plan view of a device for guiding the drawing of lines of perspective and embodying the invention.

Figure 2 is an edge view thereof.

Figure 3 is a cross-sectional view as taken on the line 3—3 of Figure 1.

Figures 4 and 5 are enlarged cross-sectional detail views of adjustable locking means used in the invention.

As shown in the drawings:

In the form in which the invention has been disclosed in the drawing, the device consists, generally, of a plurality of adjustable articulated and collapsible frames 10, 11 and 12, mounted on a common base member 13, and having respective straight edges 14, 15 and 16.

The frames 10 and 11 are arranged to have a common base comprising the longitudinal bar 17 of the base 13, and a common extensibly adjustable link 18 adjustably pivoted at 19 to the

2

base 13. The frame 10 further includes a link 20 pivoted to the base 13 at 21 and pivotally secured to an intermediate portion of the straight-edge 14 at 22. Similarly, the frame 11 includes a link 23 pivoted at 24 to the base 13 and pivotally secured at 25 to an intermediate portion of the straight-edge 15. A common strap 26, parallel to the bar 17, connects the links 20 and 23 and is pivotally connected at 27 to the link 18. In this manner, the frame 10 comprises a parallelogram consisting of the bars 17 and 18, the link 20 and the strap 26. Similarly, the frame 11 comprises a parallelogram consisting of the bars 17 and 18, the link 23 and the strap 26.

Each straight-edge 14 and 15 is provided with a longitudinal slot 28 whereby endwise adjustability of said straight-edges may be effected on the respective pivots 22 and 25, and whereby the pivotal and sliding connections 29 and 30 of said straight-edges to the bar 18, can be effected. The bar 18 is also provided with a longitudinal slot 31 so that the angular position of the straight-edges 14 and 15 can be adjusted about the respective pivots 22 and 25.

The construction of the pivot 27 is shown more clearly in Figure 4 wherein a stud 32 extends from the strap 26 through the slot 31 of the bar 18 to be locked in place as by a thumb nut 33. A spacer 34 around the stud serves to allow free respective angular movement of the bar 18 and the strap 26.

The construction of the similar pivotal connections 29 and 30 is shown in Figure 5 wherein a stud 35 extends through the slot 31 of the bar 18 through the slot 28 of either straight-edge 14 or 15 to be locked in place by a thumb nut 36. A collar 37 is provided between the bar 18 and either straight-edge 14 or 15 and a spacer 38 around the stud serves to permit both pivotal and sliding engagement between the bar 18 and the straight-edges 14 and 15.

From the above-described construction of the frames 10 and 11, it will be seen that when the edge 39 of the base 13 is positioned on or parallel to the horizon line of a drawing upon which line the vanishing points are located, that, in any adjusted positions of the straight-edges 14 and 15, said straight edges will point to said vanishing points, respectively, in any angular position of the collapsible frames 10 and 11. When comparing the relationship of the pivots 22 and 29 and the pivots 25 and 30 of the respective frames 10 and 11 in the full line and dot-dash line positions of the frames, it will be seen

that whereas only pivoting occurs at the pivots 22 and 25, both pivoting and relative sliding movement occurs at the pivotal points 29 and 30. The frames 10 and 11 may be collapsed in either direction and to any degree approaching a zero angle between the base edge 39 and the straight-edges 14 or 15 and the straight-edges can be of any suitable length so that all the necessary lines of perspective can be obtained from their various positions.

Insofar as the drawing of common perspective lines is concerned, the above-described device may be considered complete. However, for drawing the converging lines to a common vanishing point of erect objects as viewed from an elevated or low point as the case may be, the frame 12 may be provided as part of the device.

To this end, the base 13 is provided with a transverse extension 40 and is provided with spaced brackets 41 and 42 on which is pivoted a bar 43. The latter comprises one element of the frame 12 which further includes links 44 and 45, a connecting strap 46 for said links and the mentioned straight-edge 16. The link 44 is pivoted at 47 to the bar 43 and at 48 to the strap 46. Similarly, the link 45 is pivoted at 49 to said bar and at 50 to said strap. The links 44 and 45 are extended to connect at 51 and 52 to the straight-edge 16 by means of its slot 53.

The link 45 is made to be extensible as shown and comprises telescoping elements 54 and 55, adjustably secured at 56 so that the angular disposition of the straight edge may be varied with respect to the extension 40.

By tilting the frame thus provided on the pivots 47 and 49, any angle between the straight-edge 16 and the extension 40, may be obtained, the lines forming said angle, converging on a common point located on a projected line extending from the extension 40. Such converging lines can be drawn on either side of the projected line by swinging the frame 12 to either side thereof on the pivot brackets 41 and 42.

From the foregoing it will be seen that a relatively simple and effective device has been provided for the purpose of guiding the drawing of perspective lines; that the device is compact, unitary and easily adjusted and handled; and that much time can be saved thereby in the execution of perspective drawings.

Since variations in the structure of the device may be made, no restrictions in the scope of the appended claims is intended as regard to the specific instrumentalities herein disclosed which have been given by way of example or illustration only.

I claim:

1. A device of the character described comprising a base having a longitudinal edge, and a pair of frames pivotally carried by the base, each frame comprising a parallelogram having sides composed of a portion of said base, a link, a strap connecting the links, and a common bar pivoted to the base, each frame further including a straight-edge carried by each link, respectively and by the common bar.

2. A device of the character described comprising a base having a longitudinal edge, a pair of frames pivotally carried by the base, each frame comprising a parallelogram having sides composed of a portion of said base, a link, a strap connecting the links, and a common bar pivoted to the base, each frame further including a straight-edge carried by each link, respectively and by the common bar, and means for adjustably securing each straight-edge for relative pivotal and sliding movement with respect to the mentioned common bar.

3. A device of the character described comprising a base having a longitudinal edge, a pair of frames pivotally carried by the base, each frame comprising a parallelogram having sides composed of a portion of said base, a link, a strap connecting the links, and a common bar pivoted to the base, each frame further including a straight-edge carried by each link, respectively and by the common bar, and means for adjustably securing each straight-edge for relative pivotal and sliding movement with respect to the mentioned common bar, said means comprising a pivot stud having locking means and a spacer permitting the mentioned relative sliding movement of the straight-edge and common bar.

4. A device of the character described comprising a base having a longitudinal edge, and a pair of frames pivotally carried by the base, each frame comprising a parallelogram having sides composed of a portion of said base, a link, a common bar pivoted to the base, and a strap connecting the links and adjustable with respect to said common bar each frame further including a straight-edge adjustably carried by an extension of each link, respectively and by an extension of the common bar.

5. A device of the character described comprising a base having a longitudinal edge, a pair of frames pivotally carried by the base, each frame comprising a parallelogram having sides composed of a portion of said base, a link, a strap connecting the links, and a common bar pivoted to the base, each frame further including a straight-edge carried by each link, respectively and by the common bar, a third frame carried by the base and comprising a paralleogram having sides composed of a bar mounted on spaced brackets to pivot on the frame, spaced pivoted links carried by said bar, and a strap connecting said links, said third frame further including a straight-edge carried by said links.

6. A device of the character described comprising a base having a longitudinal edge, a pair of frames pivotally carried by the base, each frame comprising a parallelogram having sides composed of a portion of said base, a link, a strap connecting the links, and a common bar pivoted to the base, each frame further including a straight-edge carried by each link, respectively and by the common bar, a third frame carried by the base and comprising a parallelogram having sides composed of a bar mounted on spaced brackets to pivot on the frame, spaced pivoted links carried by said bar, means for adjusting the length of one of the links, and a strap connecting said links, said third frame further including a straight-edge carried by said links.

7. A device of the character described comprising a base having a longitudinal edge, a pair of frames pivotally carried by the base, each frame comprising a parallelogram having sides composed of a portion of said base, a link, a strap connecting the links, and a common bar pivoted to the base, each frame further including a straight-edge carried by each link, respectively and by the common bar, a third frame carried by the base and comprising a parallelogram having sides composed of a bar mounted on spaced brackets to pivot on the frame spaced pivoted links carried by said bar, and a strap connecting said links, said third frame further including a

straight-edge carried by said links, and means adjustably mounting said straight-edge on the said links.

8. In a device of the character described, a base having an edge adapted to be placed on or parallel to the horizon line of a perspective drawing, a pair of straight-edges each disposed in a direction to point to one vanishing point on said horizon line, and a swingably collapsible structure comprising a pair of parallelogram frames mounting said straight-edges on said base, said frames having a common bar, a link pivoted to the base on each side of the bar and spaced therefrom, and a connecting strap for the links parallel to the mentioned edge of the base.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
353,853	Thompson	Feb. 9, 1886
2,048,221	Redding	July 21, 1936

FOREIGN PATENTS

Number	Country	Date
63,978	Austria	Mar. 26, 1914
291,015	Great Britain	Nov. 1, 1928