June 23, 1953 J. F. KNAPP 2,643,326

ILLUMINATING DEVICE FOR GRAPHIC LAYOUT TABLES

Original Filed Dec. 20, 1948 5 Sheets-Sheet 1

FIG. 1

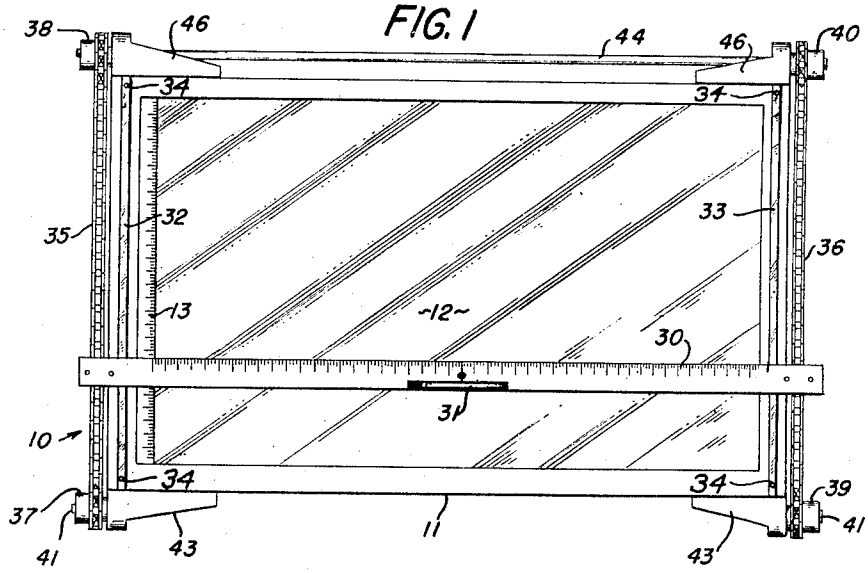
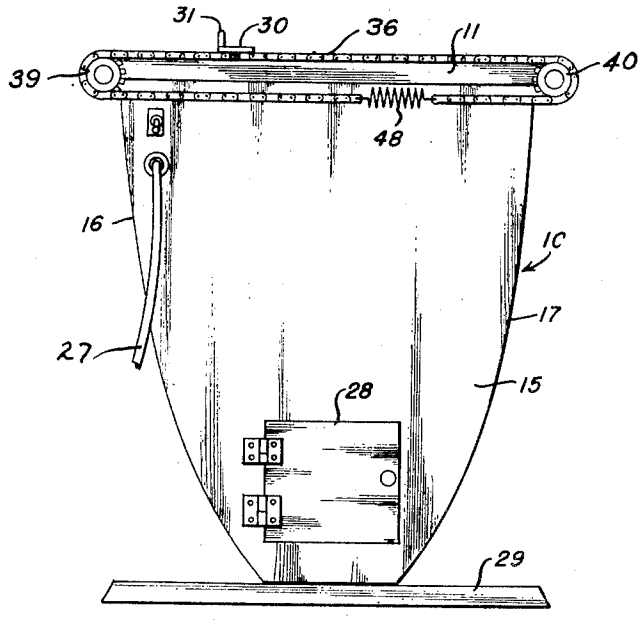


FIG. 2



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FIG. 3

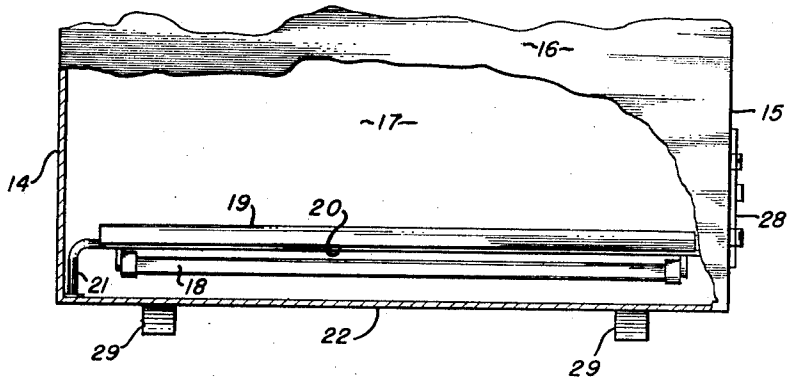
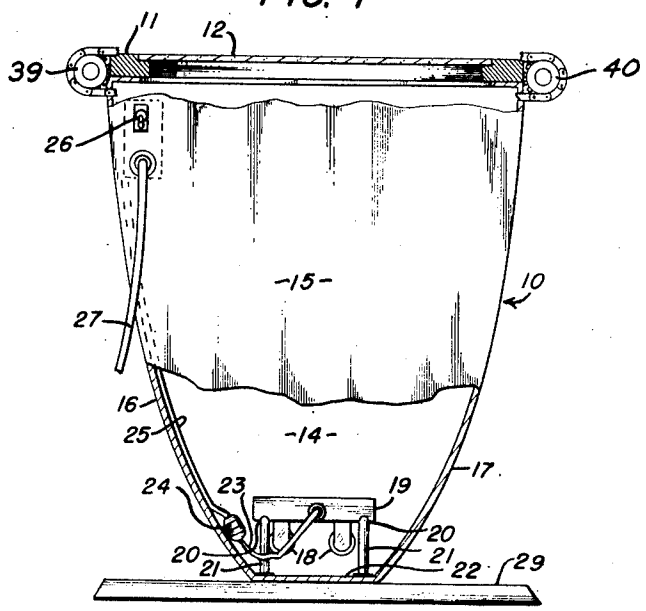


FIG. 4



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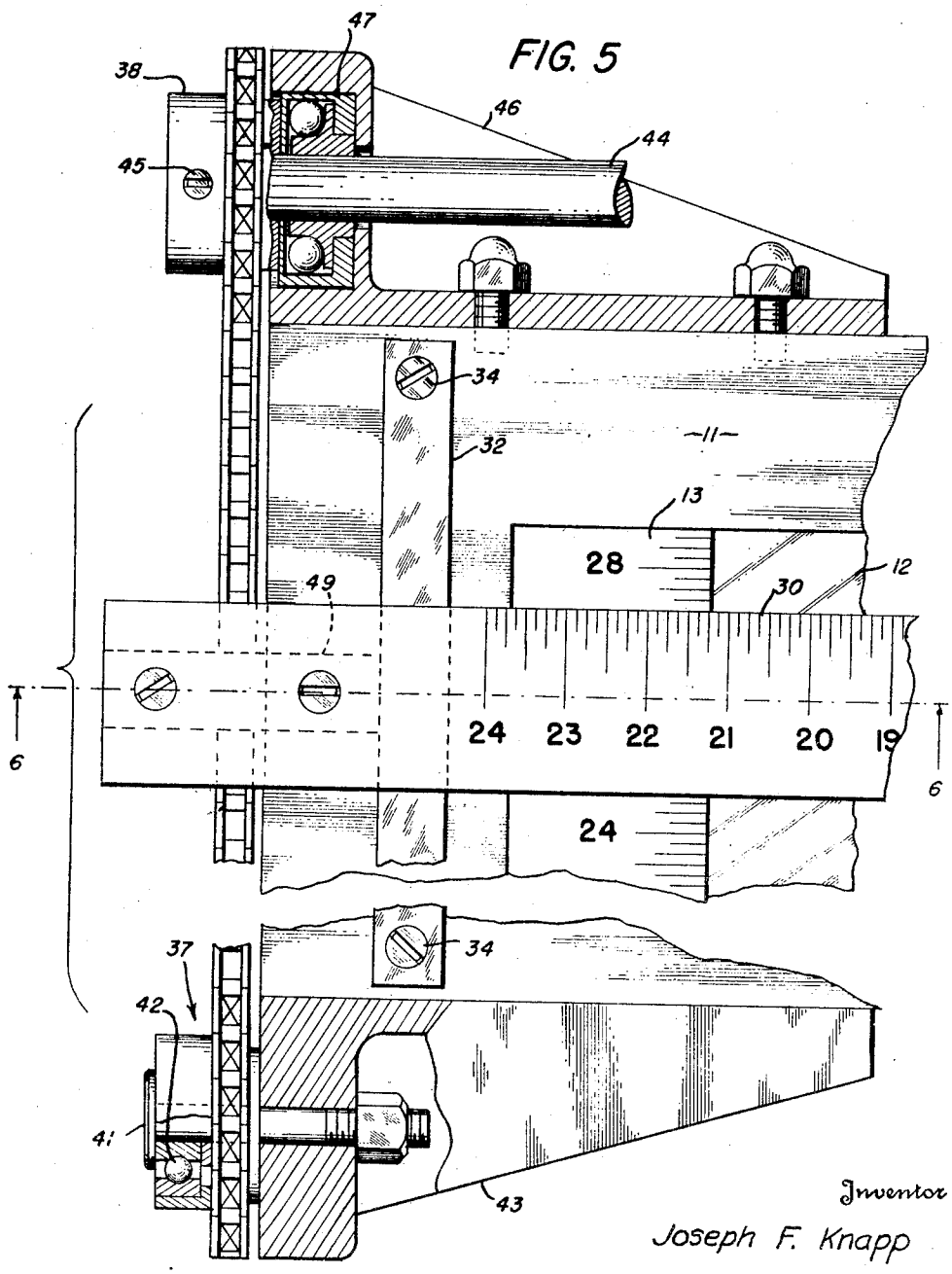
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ILLUMINATING DEVICE FOR GRAPHIC LAYOUT TABLES

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FIG. 5



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FIG. 6

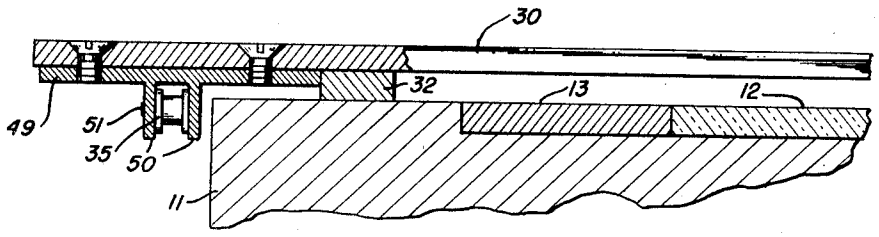
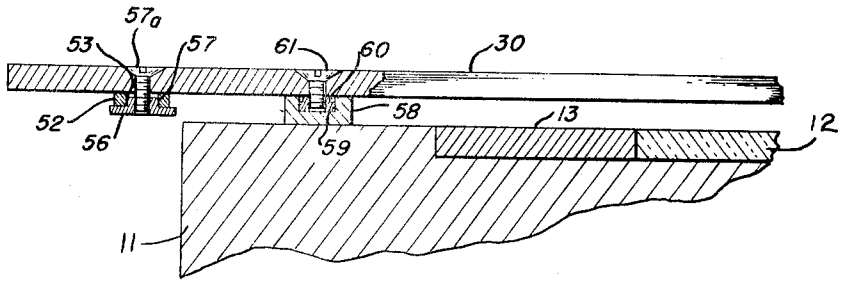


FIG. 9



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ILLUMINATING DEVICE FOR GRAPHIC LAYOUT TABLES

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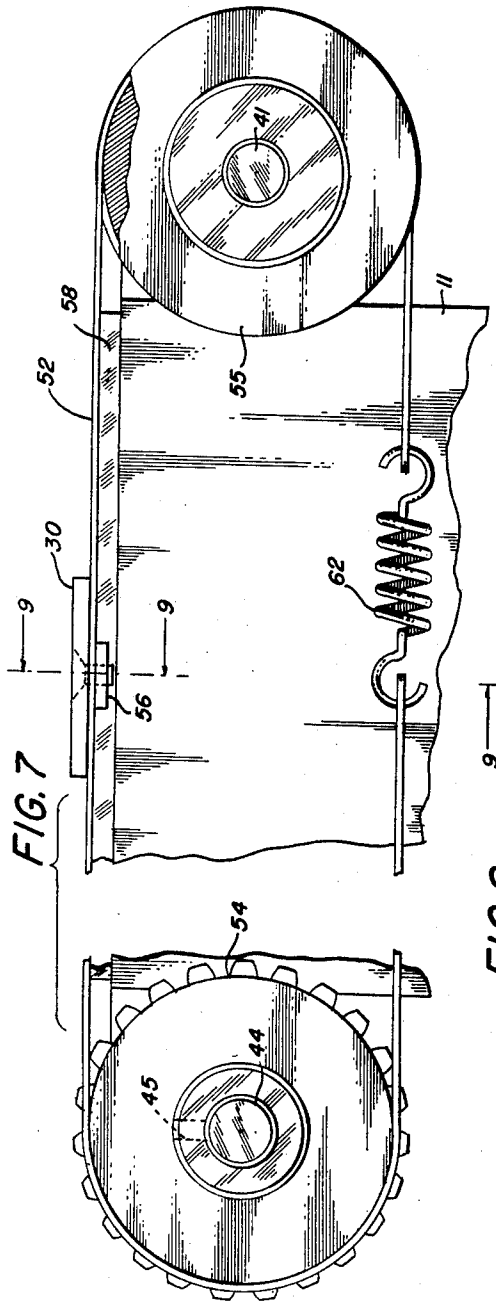


FIG. 7

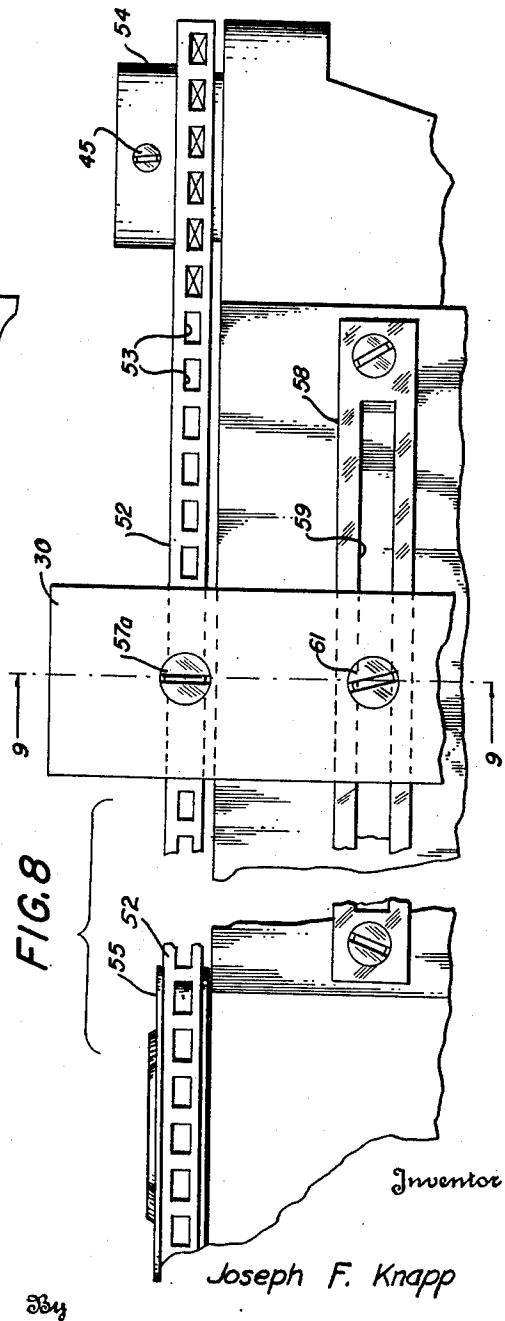


FIG. 8

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2,643,326

ILLUMINATING DEVICE FOR GRAPHIC LAYOUT TABLES

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Original application December 20, 1948, Serial No. 66,371. Divided and this application November 3, 1949, Serial No. 125,304

2 Claims. (Cl. 240—2)

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This invention relates to graphic layout tables, and more particularly to a layout table having an illuminated translucent top for the purpose of facilitating retouching, blocking-out, arranging, and other operations upon negatives or other transparencies used in processes of printing, photoengraving, lithographing, etc.

One object of this invention is to provide a table of the above nature wherein light will be directed against the table top entirely by reflecting surfaces which are so curved as to spread the light evenly, whereby no bright or "hot" spots will occur to annoy the user.

Another object is to provide a table of the above nature which is provided with an improved guiding and controlling mechanism for a straightedge located thereon.

A further object is to provide a table of the above nature which will be simple in construction, inexpensive to manufacture, easy to maintain and manipulate, compact, ornamental in appearance, and very efficient and durable in use.

Another object is to provide a table of the above nature wherein the straightedge and the controlling mechanism are vertically flexible so that the straightedge may be lifted without disturbing its horizontal position, and thus facilitate insertion and removal of the work.

With these and other objects in view, there have been illustrated on the accompanying drawing two forms in which the invention may be conveniently embodied in practice.

In the drawings,

Fig. 1 is a plan view of one form of the improved graphic layout table.

Fig. 2 is a right-hand end view thereof.

Fig. 3 is a fragmentary front view of a bottom portion of the same, partly broken away to show the fluorescent lamps therein.

Fig. 4 is a right-hand end view of the same, partly in section, the top and bottom portions thereof being partly broken away.

Fig. 5 is a fragmentary top view, partly in section, showing the sprocket and chain-operated straightedge guiding mechanism at the left-hand end of the table.

Fig. 6 is a cross-sectional view, taken on the line 6—6 of Fig. 5.

Fig. 7 is a fragmentary left-hand end view, partly in section, showing a modified form of straightedge controlling mechanism employing a perforated metal tape.

Fig. 8 is a fragmentary plan view of the same.

Fig. 9 is a fragmentary cross sectional view, taken on the line 9—9 of Figs. 7 and 8.

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This application is a division of my prior application Serial Number 66,371, filed December 20, 1948, entitled "Graphic Layout Table," now abandoned.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a body or shell which is rectangular in plan, and has an open top provided with a rabbeted frame 11 for supporting a sheet of smooth translucent material, such as ground or milk glass 12. The rabbet along the left-hand side of the frame 11 is of increased width in order to receive a graduated scale 13 (Figs. 1, 5, and 6), which is flush with the edge of the glass 12.

The body 10 comprises vertical end walls 14, 15 and curved front and back walls 16, 17, the latter walls being so shaped as to reflect and diffuse light from a pair of elongated fluorescent lamps 18 uniformly against the undersurface of the glass 12, without forming bright spots thereon. The lamps 18 are supported in the lower portion of the body 10 by means of a holder 19 which is slidably carried upon a pair of parallel horizontal U-shaped rails 20 having downturned ends 21 secured to a horizontal bottom wall 22 of the body 10.

Inasmuch as the lamps 18 are disposed under the holder 19, the sheet of glass 12 will be shielded against any direct rays from said lamps. Further, it will be seen that light rays from the lamps 18 will strike the curved front and back walls 16, 17 at varying angles of incidence, whereby the curvature of said walls will result in a uniform diffused distribution of reflected light across the undersurface of the glass 12. The interior concave front and back walls 16, 17 are preferably coated with flat white paint to enhance their reflecting characteristics.

In order to supply electric current to the fluorescent lamps 18, the holder 19 is provided with an electric attachment cord 23 which is detachably connected to a receptacle 24 in the lower part of the body 10.

The receptacle 24 is connected by means of a cord 25 to a switch 26 disposed in a convenient location in the upper part of the body 10, said switch being connected to any suitable source of electric current by means of an exterior cord 27.

In order to permit easy replacement of the lamps 18 when necessary, provision is made of a hinged door 28 in the lower portion of the end wall 15, whereby the holder 19 may be slid longitudinally upon the horizontal rails 20, and out

of the body 10, after first disconnecting the attachment cord 23 from the receptacle 24.

A stable support for the body 10 is provided in the form of a pair of elongated horizontal feet 29, which are secured to the bottom surface of the bottom wall 22.

In order to aid the operator in working upon the glass sheet 12, provision is made of a graduated straightedge 30 (Fig. 1) which preferably has a central handle 31, and is slidable forwardly and backwardly on guide strips 32, 33, which are secured upon opposite end portions of the frame 11 by means of screws 34.

In all stages of its sliding movement, the straightedge 30 is maintained in parallel positions at right angles to the guide strips 32, 33 by means of endless flexible members in the form of left-and-right-hand chains 35 and 36, which are engaged, respectively, around front and rear left-hand sprocket wheels 37, 38, and front and rear right-hand sprockets 39, 40.

The front sprockets 37, 39 are rotatably carried in positions offset from the front corners of the frame 11 by means of stub shafts 41 (Fig. 5), which have ball bearings 42 and are carried by angular brackets 43.

The rear sprockets 38, 40 are disposed in positions offset from the rear corners of the frame 11, and are fixed upon the ends of a long shaft 44 by means of set screws 45 (Figs. 5 and 7). The shaft 44 occupies a position adjacent and parallel to the rear portion of the frame 11, and is mounted upon said frame by means of a pair of angular brackets 46 having ball bearings 47 (Fig. 5). Thus, it will be seen that opposite ends of the straightedge 30 will always have identical movements by virtue of the connection of the rear sprockets 38, 40 by the long shaft 44.

In order to prevent any lost motion due to slack in the endless chains 35, 36, short coil springs 48 (Fig. 2) are inserted in the lower runs of said chains 35, 36.

The ends of the straightedge 30 are each attached to one of the respective chains 35, 36 by means of an elongated connecting bracket 49 having a central pair of depending lugs 50 (Fig. 6) which embrace one of the chain links, and are secured thereto by means of a pin 51.

The inner end of each of the connecting brackets 49 is slidably engaged with a side surface of each of the guide strips 32, 33 upon the frame 11, thus preventing endwise movement of the straightedge 30, while permitting free forward and backward movement thereof.

The coil spring 48 in one of the endless chains 35, 36 is preferably made of a greater stiffness than the corresponding spring in the other chain, so that one of said springs will over-balance the tension of the other spring, and thus prevent blocking of the straightedge 30.

Modification

Figs. 7, 8, and 9 show a modified means for controlling and guiding the straightedge 30, in which the endless members are in the form of flexible metal tapes 52 having regularly spaced rectangular perforations 53 formed therein.

The tapes 52 are engaged over rear sprocket wheels 54 which are secured upon opposite ends of the long shaft 44 by means of the set screws 45, and front pulleys 55, which are carried upon the stub shafts 41.

In this embodiment, each end portion of the straightedge 30 is attached to one of the tapes 52 by means of a tapped washer 56 which is provided with an integral rectangular lug 57 disposed in one of the tape perforations 53, and which is secured to the straightedge 30 by means of a screw 57*a* engaged therewith.

Provision is also made of a left-hand guide strip 58 which is secured to the frame 11, and has a longitudinal slot 59 in its upper surface. A tapped follower block 60 is secured to the undersurface of the straightedge 30 by means of a screw 61 and is slidably disposed in the longitudinal slot 59, whereby endwise movement of the straightedge 30 will be prevented.

Coil springs 62 are inserted in the lower runs of the perforated tapes 52, in order to prevent any slack in the tape and consequent lost motion and inaccuracy of the straightedge 30. The upper run of each of the tapes 52 will, however, be sufficiently resilient to permit the weight of the straightedge 30 to cause a degree of frictional resistance against the guide strips 58, thus tending to prevent accidental movement of said straightedge.

Operation

In operation, the flourescent lamps 18 will first be turned on by means of the switch 26, and the transparency to be worked upon will be placed upon the upper surface of the sheet of glass 12, which will receive uniformly diffused light by indirect reflection from the curved flat white inner surfaces of the front and back walls 16, 17, without any concentrated bright or "hot" spots of light which might "blind" the user, and eventually prove injurious to his eyes.

It will be understood that the straightedge 30 will be slid forwardly or rearwardly as desired, thus enabling the operator to easily draw parallel lines on the transparency.

The making of layouts will be further facilitated by the graduations upon the straightedge 30 which are numbered outwardly in both directions from a center zero point so that a layout may be easily made symmetrical about a center line.

Vertical distances upon the work will be easily determined by means of the scale 13, and since the straightedge 30 is always maintained in parallel positions, it may be used to transfer measurements upon the scale 13 to any point across the width of the work.

While there have been disclosed in this specification two forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures, but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In a graphic layout table, a body comprising a relatively small flat rectangular base, a translucent rectangular top wall larger than said base, a pair of flat end walls extending upwardly from the ends of said base to the ends of said top wall, a pair of aligned elongated fluorescent lamps within said body and disposed lengthwise in parallel spaced relationship to said base and adjacent thereto, said fluorescent lamps being supported from said bottom wall by a flat rectangular opaque reflecting member disposed in parallel spaced relationship from said fluorescent lamps and adjacent thereto, and an opposed pair of rela-

tively steep side walls having concave inner reflecting surfaces extending upwardly with increasing steepness from the sides of said base to said top wall, said lamps being parallel to said concave side walls, the lower surface of said shield serving to reflect light from said lamps downwardly upon said concave side walls, whereby the light from said lamps will impinge uniformly upon the top wall without bright spots.

2. The invention as defined in claim 1, in which provision is made of a pair of U-shaped horizontal rails spaced above said base and having their legs supported on said base, said elongated fluorescent lamps being carried by a holder slidable on said rails, one of the flat end walls of said body having an opening whereby the holder may be slid out of the body in order to facilitate replacement of said lamps.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,113,263	Ulrick	Oct. 13, 1914
1,163,647	Dick	Dec. 14, 1915
1,527,896	Miller	Feb. 24, 1925
1,728,458	Verduce	Sept. 17, 1929
1,738,172	Judson et al.	Dec. 3, 1929
1,835,087	Rommel	Dec. 8, 1931
1,868,521	Bucky	July 26, 1932
1,891,039	Barton	Dec. 13, 1932
2,351,031	Froelick	June 13, 1944

FOREIGN PATENTS

Number	Country	Date
79,663	Switzerland	Apr. 16, 1919