

Sept. 18, 1951

P. M. NAHMENS
GRAPHIC ARTS UTILITY TABLE

2,568,358

Filed Jan. 18, 1949

5 Sheets-Sheet 1

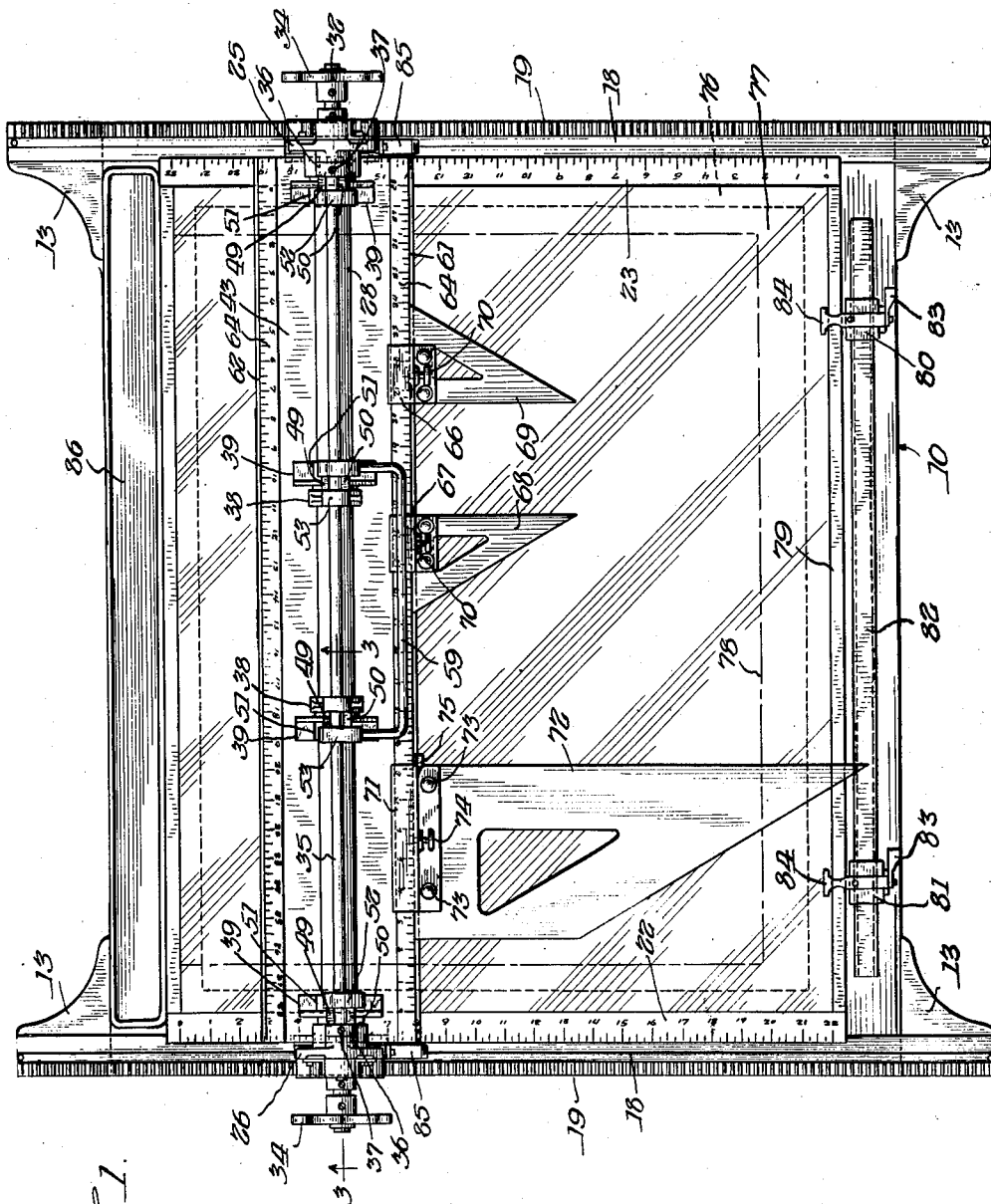


Fig. 1.

Inventor:
Paul M. Nahmens.
By: Wilkinson Hurley Brown Hume
Attys.

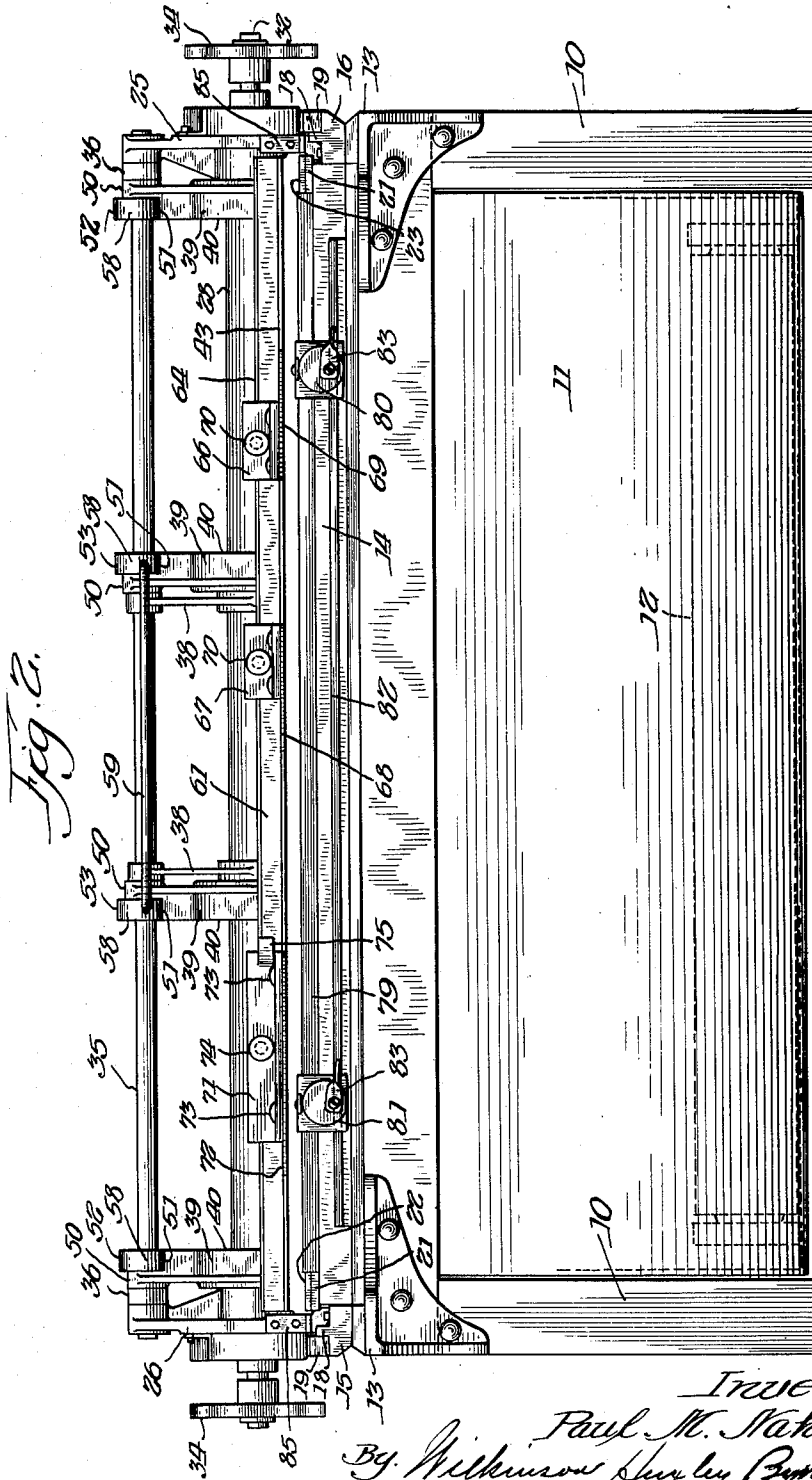
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5 Sheets-Sheet 2



Inventor:
Paul M. Nahmens.
By *Wilkinson* *Harley* *Byrne* *&* *Hume*
Attys.

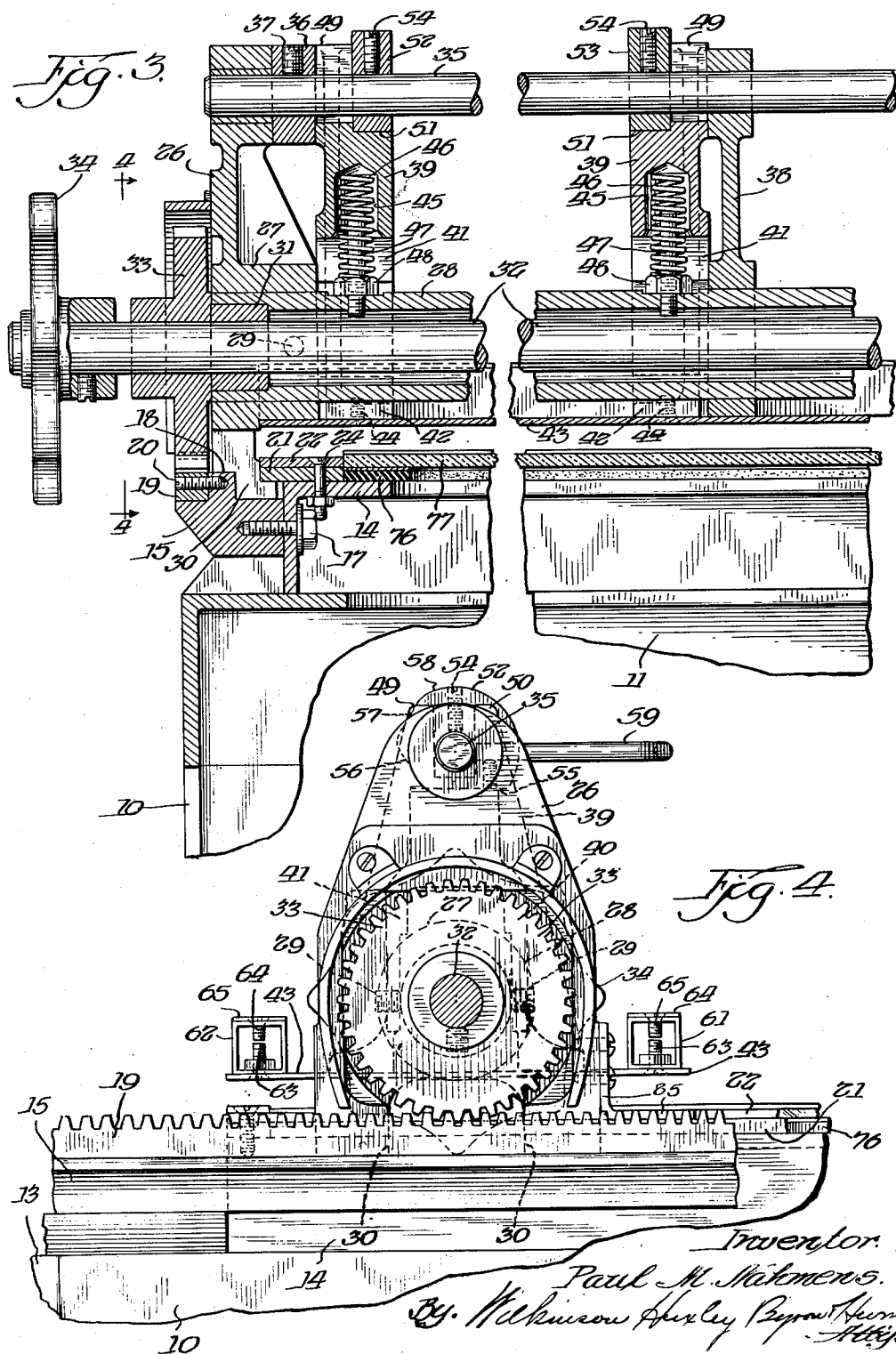
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5 Sheets-Sheet 3



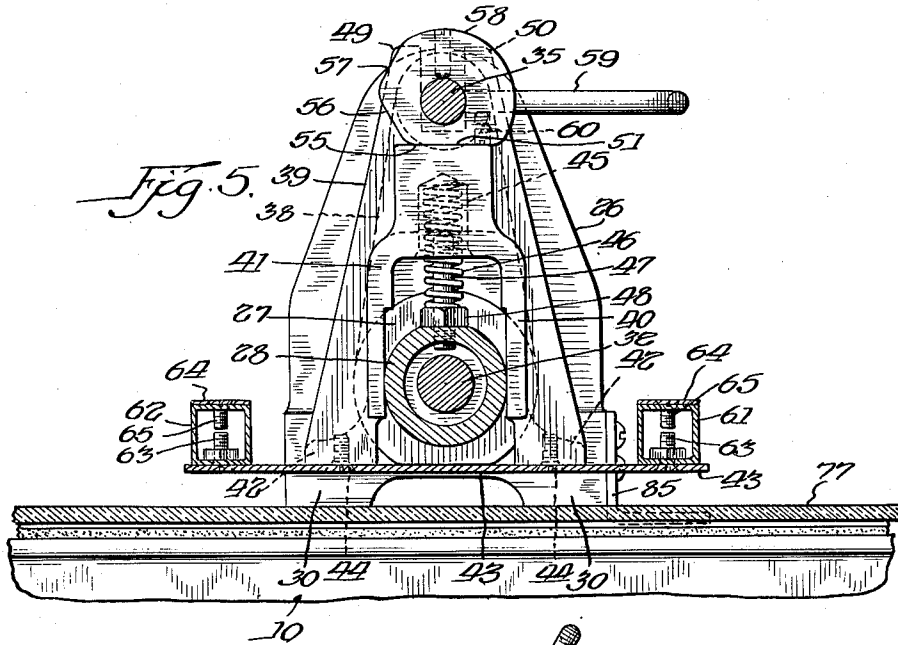
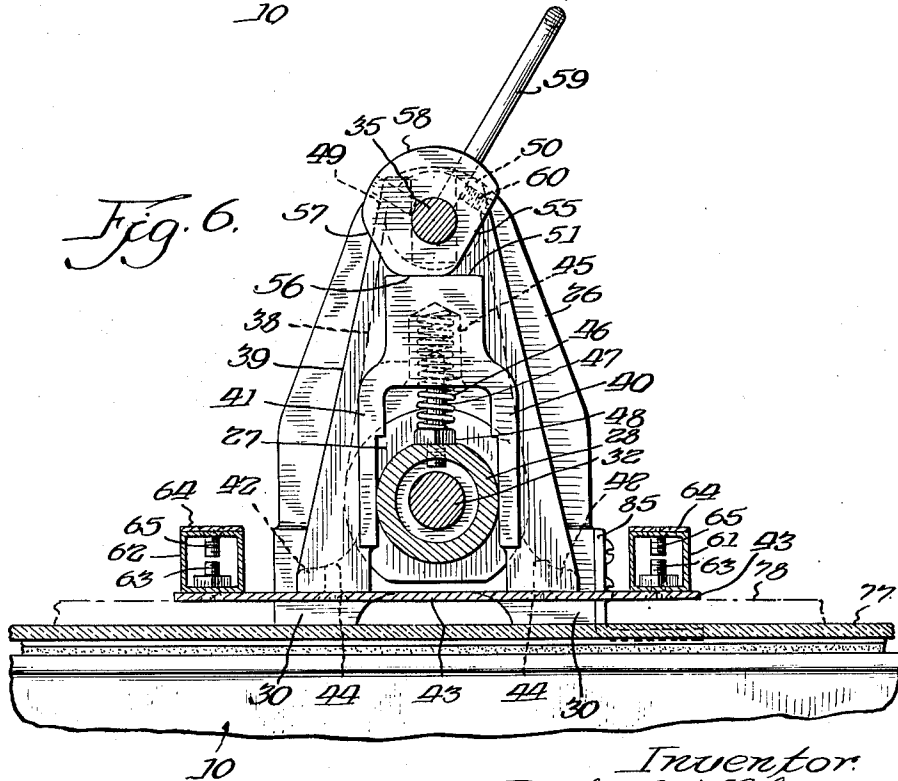
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P. M. NAHMENS
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5 Sheets-Sheet 4



Inventor
Paul M. Nahmens.
By *Wilkinson Hurley Paxon & Hume*
Attys.

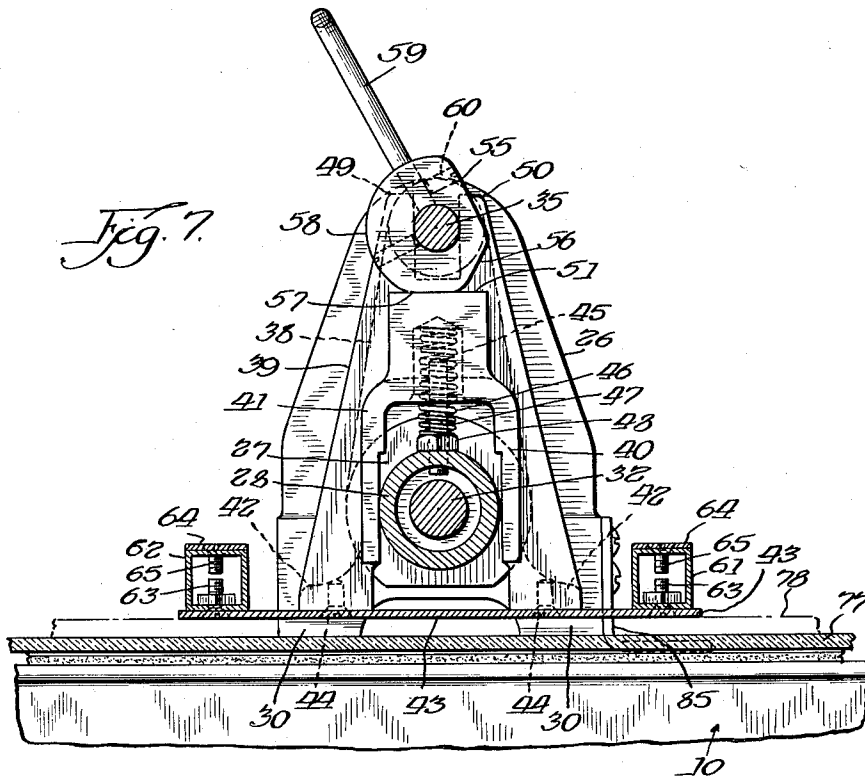
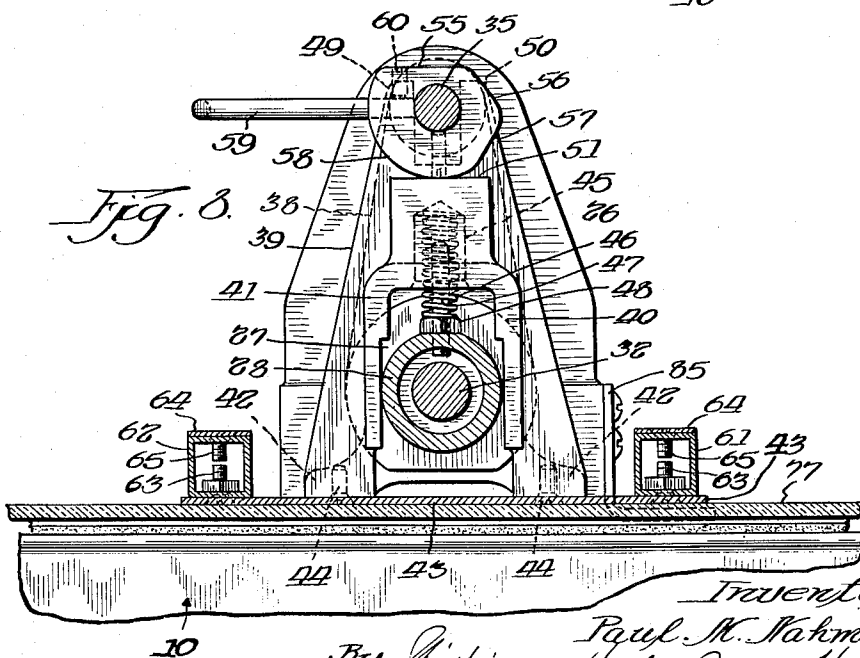
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5 Sheets-Sheet 5



Inventor:
Paul M. Nahmens.
By *Wilkinson Hurley Brown & Hume*
Attys.

UNITED STATES PATENT OFFICE

2,568,358

GRAPHIC ARTS UTILITY TABLE

Paul M. Nahmens, Chicago, Ill.

Application January 18, 1949, Serial No. 71,494

9 Claims. (Cl. 33—80)

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My invention relates to a graphic arts utility table and has particular reference to a table for use in the graphic arts industry for multiple uses such as making layouts, lineups, ruling, registry, making printed copy layouts and for cutting and stripping work in the printing trades and combines in one table the necessary means to perform all of the above operations, as well as others with precision accuracy, whereas in the past and now is common practice to require separate tables for many of these operations. This table combines all the necessary operations in preparing copy for the printing plate.

Another and further object of my invention is the provision of an illuminated graphic arts utility table having a single horizontally movable mounted carriage thereon and having a movable double straightedge mounted thereon in such a manner that work can be accomplished on either side of the straightedge depending upon the particular character of the work which it is desired to perform with the straightedge being held in pressed relation with the work sheet at various levels with respect to the working top of the table.

Another and further object of my invention is the provision of a double straightedge which can be brought into close relationship with the working surface of the table and in parallel relation therewith at all times for the performance of a number of operations and there held in tension working position in a multitude of positions with respect to the working surface by cams having a plurality of faces thereon in combination with mounting arms for the straightedge.

Another and further object of my invention is the provision of a graphic arts utility table having a double straightedge so mounted that tension is placed upon the face of the work table thereby holding a negative, layout sheet or the like in close relationship with the working glass top of the table and with the face of the straightedge brought into close contact with the upper face of the negative or layout sheet as the case may be, or a substantial portion of it so that aligning, cutting or stripping can be accomplished along the straightedge in an accurate manner.

Another and further object of my invention is the provision of a graphic arts utility table having the usual glass working surface for layout work and the like and upon which other working glass tops may be placed for use in cutting or stripping negatives and the like without defacing, chipping or marking the usual glass top of the working table or the surface normally used for

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layout work, thus providing a table with glass working tops at various levels with the straightedge so mounted that it automatically accommodates itself to various levels.

Another and further object of my invention is the provision of a graphic arts utility table in which a removably mounted glass member may be placed upon the usual glass top of the table and when the surface of the cutting member becomes worn or the like, a new cutting member can easily be substituted therefor so that it is not necessary to replace the entire working top of the table or to tear down the table and rebuild it.

These and other objects of my invention will be more fully and better understood by reference to the accompanying drawings and in which:

Figure 1 is a plan view of my improved table;

Figure 2 is a side elevational view of the table shown in Figure 1;

Figure 3 is a detailed sectional view of a corner of the table and the mounting members for the straightedge on lines 3—3 of Figure 1;

Figure 4 is a view on line 4—4 of Figure 3;

Figure 5 is a detailed cross-sectional view of the straightedge and mounting brackets therefor showing the straightedge in full open position;

Figure 6 is a view similar to Figure 5 showing the straightedge in position for use with one-quarter inch glass superimposed in position upon the regular glass working top of the table;

Figure 7 is a view similar to Figures 5 and 6, but showing the straightedge in position for use with three-sixteenths inch glass superimposed in position upon the regular glass working surface of the top of the table; and

Figure 8 is a view showing the straightedge in full closed position on the regular glass working top of the table.

Referring now specifically to the drawings and in which like reference characters refer to like parts throughout, a light box frame 10 is shown having the usual light box 11 mounted thereon within which fluorescent light tubes 12 are positioned. Brackets 13, 13 are provided at each corner of the light box frame which support an angle iron frame 14 and which in turn has a rail 15 secured to the frame 14 at the left side of the table and a similar rail 16 mounted at the opposite side of the table, these rails 15 and 16 being secured to the frame 14 by means of a plurality of bolts 17, 17. Each of the rails 15 and 16 have track portions 18, 18 thereon and integrally formed therewith, with geared rails 19, 19 mounted upon each of the rails 15 and 16 at the sides of the table and extending longitudinally

thereof and beyond the table top at each of its ends a considerable distance for purposes herein-after described, these rails being secured in position by means of threaded bolts 20, 20 which extend into the track portions 18, 18 of the rails 15 and 16.

Also mounted on the frame 14 is a pair of strips 21, 21 extending longitudinally of the table with calibrated strip members 22 and 23 superimposed thereon and held in position by means of bolts 24, 24 which extend through the calibrated strips 22, 22, strips 21, 21 and the frame 14 with the strips 21, 21 overhanging the angular edges of the frame 14 at each side thereof, particularly as shown in detail in Figure 3, the channel formed by the strips 21, 21 and the tracks 18, 18 forming guideways on each side of the table.

A straightedge carriage is provided which consists of side brackets 25 and 26 which are mounted on each side of the table, in rights and lefts as shown, and have trunnion portions 27, 27 within which a connecting member in the form of a tube 28 is mounted, and which is held in position by means of screws 29, 29 and which extends across the table from side to side and which with the brackets 25 and 26 forms the main frame for the straightedge carriage. The lower ends of each of the brackets 25 and 26 has foot portions 30, 30 portions of which are in engagement with the tracks 18, 18 on the rails 15 and 16 at the sides of the frame 14 and portions extend under the edges of the members 21 with angular channels being formed in the outer sides of the foot portions of the brackets 25 and 26 within which the track portions 18, 18 of the side rails 15 and 16 extend, these parts being fitted together to a precision degree to form accurate guideways and tracks for the lower ends of the brackets 25 and 26 respectively.

The tube 28 has bearing members 31, 31 mounted therein at each of its ends within which a shaft 32 is mounted forming an axle for the carriage with gear wheels 33, 33 mounted on the said shaft 32, which operate in engagement with the toothed tracks 19, 19 at each side of the table. Hand wheels 34, 34 are provided which are mounted upon the shaft 32 at the extreme ends thereof and provide means whereby the operator by turning either of the wheels 34, 34 moves the carriage longitudinally across the table.

A cam carrying shaft 35 is mounted in the upper ends of the brackets 25 and 26 and extends transversely across the table from side to side, with retaining collars 36, 36 being provided which hold the shaft 35 in position in the brackets 25 and 26 respectively, with bolts 37, 37 being provided which hold the collars 36, 36 upon the shaft 35.

A pair of fixed brackets 38, 38 is provided intermediate the ends of the shaft 35 through which the shaft 35 extends, the said brackets having openings in their lower ends through which the tube 28 extends, and provides support for the shaft 35 intermediate its ends. A plurality of other brackets 39, 39 are provided each of these brackets having downwardly extending legs 40 and 41 integrally formed with the body of the brackets 39, 39 and which straddle the tube 28 and have foot portions 42, 42 formed on each of said leg portions to which is attached a double straightedge blade 43 by means of screws 44, 44. Recesses 45, 45 are

formed in the bodies of each of the brackets 39, 39 within which springs 46, 46 are mounted, these springs 46, 46 being fixed over studs 47, 47 which are threaded into the tube 28 and have lock nuts 48, 48 thereon which hold the studs 47, 47 in fixed position on the tube 28 with the springs 46, 46 tending to exert their force in a direction upward upon each of the brackets 39, 39. The upper ends of each of the brackets 39, 39 have leg portions 49 and 50 which extend on each side of the shaft 35 with each of the brackets 39, 39 having recesses at their sides whereby shoulders 51, 51 are formed, with a pair of outer cams 52, 52 and a pair of intermediate cams 53, 53 being mounted on the shaft 35 and held in fixed relation therewith by means of screws 54, 54. The outer cams 52, 52 and the intermediate cams 53, 53 are mounted in the recesses formed in the brackets 39, 39 adjacent the leg portions 49 and 50 with their cam surfaces in contact with the shoulders 51, 51 formed in each of the brackets 39, 39 each of these cams 52, 53 having a plurality of flat surfaces 55, 56, 57 and curved surfaces 58 on their outer periphery. An operating handle 59 is mounted at each of its ends in the intermediate cams 53, 53 and is held in position by means of screws 60, 60 so that the operator by grasping the handle 59 rotates the shaft 35, the outer cams 52, 52 and the intermediate cams 53, 53 thereby raising and lowering the straightedge blade 43 as may be desired.

Along each of the edges of the straightedge blade 43 I provide rails 61 and 62 which are secured in position by means of screws 63, 63, with graduated rulers 64, 64 being secured to the tops of the rails 61 and 62 by means of screws 65, 65, the graduations on the rulers 64, 64 are preferably in one-sixteenth inch calibrations. Removable sliding heads 66 and 67 are mounted on the rail 61 with a right-handed triangle 68 being mounted on the head 67 and a left-handed triangle 69 being mounted on the head 66 and adjusting screws 70, 70 being provided for each of these sliding heads, so that they can be held in adjusted positions on the rail 61, if desired. The triangles 68 and 69 are comparatively short, although the length of these triangles may vary depending upon the character of the work and the use to which they are put. Different triangles are provided of suitable length depending upon the size of the sheet upon which the operator is working.

I provide a second sliding head 71 to which a larger triangle 72 is mounted by means of screws 73, 73 with a screw 74 being provided by means of which the sliding head 71 can be adjusted to any position desired by loosening the screw 74 and fixed to the rail 61 by tightening the screw 74. Either the triangle 72, or the triangles 68 and 69 can be removed from the rail 61 and fitted to the rail 62, if desired. Secured to one side of the sliding head 71 is a match plate 75 graduated in one-sixty-fourth inch calibrations so that very minute alignment adjustments can be made on the position of the triangle 72 as it is used by the operator over the face of the table.

The frame 14 at the top of the open topped light box has a strip of felt or rubber 76 thereon upon which the one side ground glass is mounted, the other side of this glass having the usual smooth surface for layout work and the like in the usual manner of tables of this character. For the purpose of stripping and superimposing negatives and the like, I provide a second glass

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78, this glass having a smooth flat surface on one side for contact with the usual glass 77 and a chemically hardened somewhat roughened work surface on its upper face to prevent negatives and the like from sliding upon the surface of the glass 78 and yet providing a surface sufficiently smooth so that negatives and the like can be stripped to size by the operator using either side of the straightedge blade 43 as a guide or the sides of the triangles, if the negatives are to be cut or stripped in a longitudinal direction. These superimposed glass members may be either one-quarter inch or three-sixteenths inch in thickness, depending upon the character of the work for which they are to be used, which is readily understood by those skilled in the art with the cam surfaces heretofore described provided the means by which the straightedge 43 is brought into engagement by the operator upon either the regular working surface or the surface of the glass member superimposed upon the regular working surface, as will be more fully described hereinafter.

A steel guide plate 79 extends a very slight distance above the surface of the glass 77 to provide a ledge on one side of the table against which negatives, pages for layout work and the like may be held, if desired. A pair of clamping members 80 and 81 are mounted upon the rail 82 and may be moved upon the rail 82 with eccentric finger members 83, 83 being provided with paper engaging end portions 84, 84 which are used to clamp negatives, paper and the like to the surface of the glass as the operator is working thereover, although these negatives, pages, paper and the like may be taped to the surface of the glass for layout purposes, which is the practice followed at the present time, if desired.

Match plates 85, 85, also calibrated in one-sixty-fourth graduations, are attached to the brackets 25 and 26 at each side of the table for use with the calibrated strip members 22 and 23 are provided to enable an operator to secure a very fine adjustment of the straightedge, if desired. A tray 86 is also provided within which brushes, pencils and supplies may be placed for use by the operator, if desired.

In operation the operator, if he desires to lay out material forming the pages of a book, places a layout sheet upon the glass top 77 and tapes or clamps the layout sheet so that it is held securely to the surface of the glass top 77. Before placing the sheet on the top 77 the straightedge and carriage therefor can be moved to the extreme ends of the tracks 19, 19 with the straightedge in full open position, as shown particularly in Figure 5, with the cam surfaces 55 in engagement with the shoulders 51, 51 on the brackets 39, 39 by manipulating the hand wheels 34, 34, thereby moving the carriage including the straightedge, which can then be brought to a position off the glass top 77 and thereafter can be brought into any desired position over the table by reversing the turning movement of the wheels 34, 34. For making the necessary horizontal lines defining a page, the straightedge is brought to adjusted position and the operator by grasping the handle 59 and pushing it through an arc of 180° brings the straightedge into pressed relation with the glass 77 and through the use of a pencil, ruling pen or the like, using the sides of the straightedge as a guide, places upon the layout sheet such spaced horizontal lines as may be necessary using the calibrated strips 22 and 23 at the sides of the table for measuring purposes. If very fine

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adjustability, even to one-sixty-fourth of an inch, is desired, the operator uses the match plates 85 for this purpose. For defining the areas used for pages of the book or the like, preferably the longer triangle 72 is placed in such adjusted position as may be necessary, using the calibrations on the ruler 64 for this purpose and adjusting the triangle 72 to such position as may be necessary by loosening the screw 74 for the purpose of securing the triangle 72 in proper position for outlining the printed areas of the pages, providing folding lines and binding lines and the like on such pages, as may be desired. Instead of taping the paper down, the clamps 80 and 81 at one edge of the table may be used for holding the paper at one side. Because of the pressure exerted by the straightedge on the layout sheet at the opposite side, it may not be necessary to tape the paper to the glass surface, as usually is done in laying out work of this type and character.

When the straightedge is adjusted to its proper position for work of this character, the operator again moves the handle in an arc of 180°, which ultimately brings the curved cam surface 58 into engagement with the shoulder 51 thereby exerting a slight pressure upon the layout sheet and paper, the cams being so ground that a slight pressure is exerted upon the table top 77 without a layout sheet, negative or the like being upon the table. Because of the pressure exerted on the straightedge, all wrinkles and the like are removed from the layout sheet and the straightedge held firmly down upon the surface of the sheet, so that a very accurate line may be ruled upon the sheet without any slippage or movement of the sheet, which might occur, if the spring pressure were not present. The face of the straightedge blade 43 is always parallel to the face 77 of the table top and because the work sheet is gripped by such a large surface and substantially all the air is forced out from between the straightedge blade and the work sheet and between the table top and the work sheet it will not slip when the straightedge blade 73 is lowered upon it. Also the triangles 68, 69, and 72 are held in parallel alignment with the table top so that greater accuracy and convenience is assured.

In this manner the operator can complete his layout work making such horizontal and vertical lines on the layout sheet, as may be desired to present a complete pattern of the printed pages of a book depending, of course, on the size of the pages and how many times the printed pages are to be folded to provide the signatures for making up the complete book. If the pages are small, the work can be done with the right and left triangles, but if either of these are not being used they can easily be removed from the rails upon which they are mounted and laid aside. Upon the work being completed the operator rotates the handle 180° to the position shown in Figures 4 and 5 of the drawings so that the straightedge is provided with a substantial clearance above the working surface of the table and the layout sheet removed from the top 77.

In performing service such as cutting or stripping negatives for use in preparing plates for printing, photolithographing work or the like, a cutting or stripping glass 78 one-quarter inch in thickness is placed on the usual top plate 77, then in utilizing the straightedge for cutting or stripping purposes the operator turns the handle to the position shown in Figure 6 bringing the cam surfaces 56 into engagement with the shoul-

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ders 51, 51 of the cams, which brings the straight-edge into pressure position against the upper face of the cutting or stripping glass, such as 78 and in this position the cutting or stripping operations can be performed through the use of the straightedge or the triangles. In the case of a different type of cutting or stripping glass such as three-sixteenths of an inch in thickness is used and the operation is substantially the same. The operator grasps the handle and turns it in position as shown in Figure 7, the straightedge is brought to operative relation with the upper surface of this glass.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit or scope of my invention.

What is claimed is:

1. In combination with an illuminated printer's layout table having guide means at the sides thereof geared tracks on the said table extending parallel with the said guide means, a straightedge carriage consisting of a pair of side members having foot portions in engagement with the said guide means, a connecting member for said side members, an axle mounted in said connecting member, geared wheels on said axle in engagement with the said geared tracks, a cam carrying shaft mounted in said side members, a plurality of movable straightedge supporting brackets having leg portions at each of their ends, the legs at one end being on opposite sides of the said connecting member and at their opposite ends extending on each side of the cam carrying shaft, cams on said cam carrying shaft in engagement with the said brackets, springs mounted on the said connecting member and in engagement with the said straightedge supporting brackets and a straightedge mounted at the lower ends of the said straightedge supporting brackets.

2. In combination with an illuminated printer's layout table having guideways at the sides thereof and geared tracks extending parallel with the said tracks, a carriage comprising a pair of main brackets having portions at their lower ends extending into said guideways, a hollow connecting member for said brackets, an axle extending into the hollow connecting member, geared wheels in engagement with the said geared tracks mounted on the said axle, a cam shaft on said brackets, a plurality of movable straightedge supporting brackets bifurcated at each of their ends and extending on each side of the connecting member and the cam shaft, a double edged straightedge blade mounted on said straight edge supporting brackets at their lower ends, cams in the said cam shaft in engagement with the movable straightedge brackets and springs mounted on said hollow connecting member in engagement with the said brackets and tending to keep said brackets in engagement with the said cams.

3. In combination with an illuminated printer's layout table having guideways at the sides thereof and geared tracks extending parallel with the said tracks, of a carriage comprising a pair of main brackets having portions at their lower ends extending into said guideways, a hollow connecting member for said brackets, an axle extending into the hollow connecting member,

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geared wheels in engagement with the said geared tracks mounted on the said axle, a cam shaft on said brackets, a plurality of movable brackets bifurcated at each of their ends and extending on each side of the connecting member and the cam shaft and having cut out portions at the sides of the said movable brackets whereby shoulder portions are formed, a double edged straight-edge blade mounted on said movable brackets at their lower ends, cams on the said cam shaft in engagement with the movable brackets at their upper ends and fitted against the shoulders formed by the cut out portions on the ends of the movable brackets adjacent the cam shaft and springs mounted on said hollow connecting member in engagement with the said movable brackets and tending to keep said movable brackets in engagement with the said cams.

4. In combination with an illuminated printer's layout table having guideways at the sides thereof and geared tracks extending parallel with the said guideways, of a carriage consisting of a pair of main brackets having foot portions extending into operating engagement with the said guideways, a tube connecting the said main brackets, an axle extending longitudinally of the said tube, gear wheels on the said axle in engagement with the said tracks, a rotatable shaft in the outer ends of the said brackets, a plurality of cams on the said rotatable shaft, a plurality of movable brackets having leg portions at their lower ends on opposite sides of the said tube and leg portions at their opposite ends on each side of the said rotatable shaft and having recesses within which the said cams are seated, springs mounted on the said tube in engagement with the said movable brackets, and a two edged straightedge mounted on the said movable brackets.

5. In combination with an illuminated printer's layout table having guideways at the sides thereof and geared tracks extending parallel with the said guideways, of a carriage consisting of a pair of main brackets having foot portions extending into operating engagement with the said guideways, a tube connecting the said brackets, an axle extending longitudinally of the said tube, gear wheels on the said axle in engagement with the said tracks, a rotatable shaft in the outer ends of the said brackets, a plurality of cams on the said rotatable shaft, a plurality of movable brackets having leg portions at their lower ends on opposite sides of the said tube and leg portions at their opposite ends on each side of the said rotatable shaft and having recesses within which the said cams are seated, springs mounted on the said tube and extending into recesses formed in the said movable brackets, and a two edged straightedge mounted on the said movable brackets.

6. In combination with an illuminated printer's layout table having guideways at the sides thereof and geared tracks extending parallel with the said guideways, of a carriage consisting of a pair of main brackets having foot portions extending into operating engagement with the said guideways, a tube connecting the said brackets, an axle extending longitudinally of the said tube, gear wheels on the said axle in engagement with the said tracks, a rotatable shaft in the outer ends of the said brackets, a plurality of cams having a plurality of variable cam faces thereon on the said shaft, a plurality of movable brackets having leg portions at their lower ends on opposite sides of the said tube and leg portions at

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their opposite ends on each side of the said rotatable shaft and having recesses within which the said cams are seated, springs mounted on the said tube in engagement with the said movable brackets, and a two edged straightedge mounted on the said movable brackets, the variable cam faces forming means whereby the straightedge is held in a plurality of operating levels.

7. In combination with a printer's layout table having guideways at each side thereof, tracks having gear teeth thereon at each side of the said table, a straight edge carriage on said table comprising main brackets at each side of the said carriage having foot portions extending into the guideways at the sides of the table, a hollow connecting member for said main brackets, a shaft in said connecting member, gear wheels on each of the ends of the said shaft in engagement with the said tracks, a rotatable cam shaft mounted in said main brackets at each of its ends, vertically movable brackets having bifurcated lower ends mounted over the said hollow connecting member and having bifurcated upper ends extending on each side of said rotatable shaft and having offset portions adjacent the upper ends of the said vertically movable brackets, cams on the said cam shaft in engagement with the offset portions of the said movable brackets, fixed springs on said hollow connecting member and in engagement with the said vertically movable brackets whereby the said vertically movable brackets are urged toward the said eccentrics, and a straightedge mounted on the said movable brackets parallel with the top of the said table.

8. A printer's layout table having guideways at each side thereof, tracks having gear teeth thereon at each side of the table, a straightedge carriage comprising a pair of side brackets having foot portions extending into the said guideways, a connecting tube for said side brackets, an axle therein, gear wheels in engagement with the said tracks on the said axle, a rotatably mounted cam carrying connecting shaft on said brackets, movable brackets having bifurcated ends mounted astride the said connecting tube at one of its ends and astride the cam carrying shaft at its opposite end and having shoulder portions ad-

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acent the said cam carrying shaft with foot portions on the bifurcated end portion astride the said tube, cams on the said cam carrying shaft in engagement with the shoulders on the said brackets, compression springs on the said tube in engagement with the said movable brackets and a straightedge secured to the foot portions of the said brackets.

9. A printer's layout table having guideways at each side thereof, tracks having gear teeth thereon at each side of the table, a straight edge carriage comprising a pair of side brackets having foot portions extending into the said guideways, a connecting tube for said side brackets, an axle therein, gear wheels in engagement with the said tracks on the said axle, a rotatably mounted cam carrying connecting shaft on said brackets, movable brackets having bifurcated ends mounted astride the said connecting tube at one of its ends and astride the cam carrying shaft at its opposite end and having shoulder portions adjacent the said cam carrying shaft with foot portions on the bifurcated end portion astride the said tube, cams having a plurality of cam faces thereon on the said cam carrying shaft in engagement with the shoulders on the said brackets, compression springs on the said tube in engagement with the said movable brackets and a straightedge secured to the foot portions of the said brackets, the axes of the said tube and the cam carrying shaft being parallel to the top of the table.

PAUL M. NAHMENS.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,322,592	McTaggart	Nov. 25, 1919
1,977,213	Slobey	Oct. 16, 1934
2,125,039	Trotter	July 26, 1938
2,399,610	West et al.	Apr. 30, 1946

FOREIGN PATENTS

Number	Country	Date
22,803	Great Britain	Oct. 27, 1908
373,138	France	May 2, 1907